



AKSUM UNIVERSITY

COLLEGE OF AGRICULTURE

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**THE ROLE OF GENDER IN DAIRY VALUE CHAIN:
THE CASE OF CENTRAL ZONE OF TIGRAY**

BY

ZEMEDA G/MICHAEL

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MAJOR ADVISOR: KINFE ABRAHA (PhD)

CO-ADVISOR; BRHANU GEBRE MEDHIN (PhD)

**June, 2015,
Axum, Ethiopia**

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Approval sheet

Aksum University

College of agriculture

As thesis research advisors, we hereby certify that we have read and evaluated this thesis prepared under guidance by ZEMEDA G/MICHAEL entitled <THE ROLE OF GENDER IN DAIRY VALUE CHAIN; THE CASE OF CENTRAL ZONE OF TIGRAY > that it be accepted as fulfilling the thesis requirement.

<u>Dr. KINFE ABRHA</u>	_____	_____
Name of major advisor	signature	date

<u>Dr. BRHANU G/MEDHIN</u>	_____	_____
Name of co-advisor	signature	date

As member of the examining board of the final MSc. open defense we certify that we have read and evaluated the thesis prepared by Zemedha G/Michael and examined the candidate, we recommend that it be accepted for the degree of masters of sciences in agribusiness and value chain management.

<u>MULUGETA</u>	_____	_____
Name of chair man	signature	date

<u>Dr. YASIN IBRAHIM</u>	_____	_____
Name of internal examiner	signature	date

<u>Dr. GETACHEW</u>	_____	_____
Name of external examiner	signature	date

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DEDICATION

This thesis is dedicated to my brother KAHSAY G/MICHAEL. Whom who lost in April, 2004 E.C. You are always in my heart, I love you. May God rest your soul in Heaven?

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ABRIVATIONS

CSA	Central Statics Agency
DA	Development Agent
GTZ	Germany Technical Cooperation
ILO	International Labor Organization
LMD	Livestock Market Development
ILCA	International Livestock Center of Africa
PPLPI	Pro-Poor Livestock Policy Initiative

ABSTRACT

This master thesis discusses the gender roles in a dairy value at the study area central zone specifically, rural and urban Woredas of Laelay May chew and rural Adwa and Axum and urban Adwa that is four kebele from rural /Soloda, Betehans, Sefeho, Hatsebo/ and four kebele from urban Axum and Adwa respectively; Hawelti, Hayelom and Mebale and Hayelom.

The objective of the research is to investigate the gender role at the dairy value chain in the study area and to assess the decision role of both gender on the income of dairy farming and to identify the perception of both gender on the dairy farm activities.

The research tried to answer some problems; the first one is to solve the information gap of the study area as there was no related study done on the gender role at dairy farm activity in the study area and the second one is to compare the result of this research finding with the finding of other researchers studied at different areas.

The sample design of the research is constructed from both rural and urban dairy farmers, dairy product sellers and buyers, and dairy product consumers, from these the sample size totally 220 and from these 180 from rural and urban dairy farmers and 40 from dairy product traders' i.e. hotels and cafes that buy and sell milk. This research employed both qualitative and quantitative methods and the data was collected primary and secondary. The primary data were collected using four methods namely survey, key information interview, focus group discussion and method of observation. Both structured and open ended questionnaires, interview checklists and focus group discussion guides were used.

The result of the research finding female and male participate at different chain activities. At the input side, purchasing of dairy cows dominated by males as 69.4% and 30.6% females participated; cleaning of dairy shed female participates 61.7% and 55% at rural and urban respectively, males 38.3% and 45% rural and urban participates respectively. Caring of dairy cow and calves also female 51% and male 49% participate; dairy animal feed collection dominated by males 58.8% and 41.2% are males; watering of dairy animal also dominated by female as 56.7% and 55% at rural and urban respectively and males 43.3% and 45% rural and urban respectively. The production or breeding of dairy animal dominated by males at both study areas i.e. males 71.6% and female 28.4% were participated. At the process side or milk

container cleaning, milk storage and preparation, milking and milk churning dominated by females. The transporting and selling of milk were dominated by male 55% and female 45% specifically boys and girls at rural but at urban area 55% females participate at selling of milk; butter selling dominated by females by 93.2%.

The thesis also looks at how the society perceives in controlling and benefit from the dairy income and the result is women's have a culture and belief to control and benefit from the income. Research showed that there are some men who do not do certain activities because of the influence of culture. The thesis also looks at how gender perceives on the role of division on dairy value chain activity proves the previous perception means women engaged in lower level of dairy value chain than males.

The research concluded that there is still gender participation difference in activities; women's are confined at lower level dairy value chain activity which is routine and daily and needs more time and in considerable activities and females dominant at input side value chain and males at production side and both genders' perception supports this role differences. On the other hand both husband and wife equally decide on how to use and share the income of the dairy farm and women's are more benefit able from the income.

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CHAPTER ONE: INTRODUCTION

1.1. BACK GROUND

Ethiopia holds large potential for dairy development due to its large livestock population, the favorable climate for improved, high-yielding animal breeds, emerging market opportunity, improved policy environment for involvement of private sectors, and the relatively disease-free environment for livestock. Given the considerable potential for smallholder income and employment generation from high-value dairy products, development of the dairy sector in Ethiopia can contribute significantly to poverty alleviation and nutrition in the country. Though different classifications have been used to characterize the dairy production system in the country; based on their locations, classified into three broad categories, namely, urban, peri-urban and rural dairy production (*Ulfinal G, et.al, 2013*).

Ethiopia is believed to have about 141 million livestock which is the largest livestock population in Africa. About 49 million of the livestock populations are cattle with 27 million females and 16 million are dairy cows. In Ethiopia, dairy serves as a source of income, nutrition and health for the smallholder rural farmers. Traditionally, dairy has been used as a source of household food and oxen for draft power in the rural communities. However, with income increase of the urban and pri-urban populations, the demand for dairy products also increased. At the same time, dairy management is labor intensive and supports substantial employment along the dairy value chain. Thus, dairy enterprise as a source of income and employment in the rural areas steadily increased. Consequently, new skills and dairy management interventions along the dairy value chain framework have been introduced (AGP.2013.).

Ethiopia produces 3.3 billion liters of milk in 2011/2, worth \$ 1.2 billion and imported an additional \$10.6 million of dairy products. The Ethiopia's per capita annual milk consumption is well below the world average of 105 liter and the African average of about 40 liters which is 19 liters. The Ethiopian dairy production and marketing system faces sever constraints; the average production per cow is 1.5 liters per day, well below international

bench marks. Poor genetic insufficient access to proper animal feed and poor management practices all contributes to the low productivity levels (Agricultural Growth Program, 2013).

In Tigray, as in other regions of high lands, raw milk, ergo, cottage, cheese, when, butter and ghee are major marketable milk products. The majority of milk products deliver their milk directly to the end consumer, while some also sell to retailers, hotels and cafes. Peri-urban and urban production in and near urban areas is primarily by small holders, many of whom have improved of cows (LMD, 2013). The role of men and women in agricultural production and house hold decision making in resource allocation, technology adoption, marketing and consumption vary in Africa (International Livestock Research Institute, 2011).

The government of Ethiopia is committed to achieving gender equity and gives this objective specific attention in its constitution and policy initiatives. Men and women are involved in livestock sector, but in different ways and they face different constraints. Women have important role in managing dairy cattle, poultry and other small ruminants'. They are often involved in feeding, watering, milking, animals reared close to home. Women's are most typically primarily in roles that revolve around the home, differing matters of sale and marketing, other than in nearby location, to men (LMD, 2013). The purpose of this research was to examine gender roles in a dairy value chain in the central zone of Tigray which is Adwa and Laelay – maychew woredas and from urban areas are Adwa and Axum towns.

1.2. Statement of the problem

The central zone of Tigray was categorized as semi-highland which is suitable for dairy production. Gender issues shape the totality of production, distribution and consumption within an economy but have often been overlooked in a value chain development. From production, processing and marketing, gendered patterns of behavior condition women's and men's jobs and tasks, distribution of resources and benefits derived from income generating activities in the chain. Gender role in dairy value chain both in rural and urban with dairy value chain have more consideration in this research.

Studies such as (Brhanu K.2012),(Brhanu et.al 2006a), and (Immaculate N, 2014), indicate that women participate in low level of dairy value chain i.e. feeding, bran cleaning, calf caring which is not visible where as men participate in high level of the value chain so the

research has tried to assess whether or not these problems exist in the study area. In addition, the gender roles in the dairy value chain is not clearly investigated; in these woredas that the researcher has conducted a research. Thus, the research at hand aimed at investigating the gender roles in the dairy value chain; and there by recommends policy issues that enhance gender equity and gender equality.

1.3. Research questions

The main research question of the study is “What is the gender role in the dairy value chain in central zone of Tigray of the selected woredas? In addition, this study also has the following five sub questions.

1. What is the gender division and roles in the dairy value chain in the study areas; either gender role difference between rural and urban places?
2. Who makes decisions in regard to sharing benefits accrued in a dairy value chain?
3. What is the perception of men and women regarding activities in the dairy value chain?
4. Whose role (both males and females) is perceived to be more profitable by the community and what do the actual results tell us in this regard?

1.4. Research objectives

1.4.1 General objective

The general objective of the study is: “To explore the emerging shifts in gender roles in the various levels/stages of a dairy value chain, in the farmer having local dairy cow, cross bred and pri-urban and urban exotic small holder dairy production value chain in Laelay-may chew and Adwa woredas.

1.4.2. Specific objectives

The study also has the following five specific objectives.

1. Investigate the gender division and roles in the dairy value chain in the study areas and compared gender role difference between rural and urban places.
2. Identify the roles played by both males and females in deciding and sharing benefits accrued in a dairy value chain.
3. Identify the perception of men and women regarding activities in the dairy value chain.
4. Document on how the roles (of both the males and females) are perceived to be more profitable by the community and then identify what the actual results tell us in this regard.

1.5. Scope of the study

This study was conducted in the central zone of Tigray which have 12 wordas but the study focus only at four Woredas and eight kebelles of Adwa rural and urban, Axum town and Laelay-Mmaychew wordas which is 33.3% share and focused only on cattle dairy farmers of family member of the male headed house hold in both rural and urban but the research not included all farmers like female headed and male headed house hold. In addition, the study focused only on gender roles in a dairy value chain in rural and urban areas not included the overall opportunity and challenges of the sub-sector, so these gap needs further study that are opened to other researchers .

1.6. Definition of terms

- **Value chain** means all the sequence of production and marketing steps of a product ranging from primary production, processing, and distribution up to the retail sale till it reaches the final consumer
- **Gender** is a socially and culturally constructed identity as male or female. Gender is conceptualized as the socially constructed difference between women and men (Kabeer, 1999).

- **Dairy farming** is a class of agricultural husbandry that deals with milk production from cows, goats and sheep. The study will focus on dairy farming in cows.
- **High level of the dairy value chain** – this is the stage along the dairy value chain where benefits are seen or accrue, for example sale of the milk.
- **Low levels of the dairy value chain** – these are stages along the value chain that mostly deal with inputs rather than the outputs, e.g., weeding fields, feeding and watering of cows cleaning sheds.
- **Gender roles** are the social and behavioral norms that are generally considered appropriate for either a man or a woman in society.
- **Gender needs** are needs that are specific to women as a result of their triple role and subordination in society.

CHAPTER TWO

LITERATURE REVIEW

2.1. Basic concept of value chain approach

Value chain approach is full range of activities required to design, delivery support of product or service. Activities start from input provision, production, processing and delivering up to consumer. Value chain out bound logistics, marketing, sales and service are characterized as primary activities. Secondary activities are procurements human resource management, technology development and infrastructure (porter 1985, pp, 11-15).

A value chain is a vertical alliance or strategic network amongst a number of independent enterprises that are related to each other within a production chain.

The *value chain* describes the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use.(Raphael K, et al,2000).

2.2. The concept of gender;

Gender is about how society gives meaning to differences in femininity and masculinity, and the power relations and dynamics that come about as a result of this (*Laven et. al., 2009*). It is a concept that;

Allows one to understand men and women, not as elements that are independent of society, but rather form an integral part of it.

Separates biological issues from cultural ones, while it characterizes the discrimination of women as a problem rooted in power.

Deals with the unequal power relationships that exist between men and women, both at a personal level and at the level of society as a whole (Roxana Dulon G, 2009)

2.3. Dairy value chain

The promotion of value chains in agribusiness aims to improve the competitiveness of Agriculture in national and international markets and to generate greater value added within the country. The key criterion in this context is broad impact, i.e. growth that benefits the rural poor to the greatest possible extent or, at least, does not worsen their position relative to other demographic groups (GTZ, 2006). The need to connect producers to markets has led to an understanding that it is necessary to verify and analyze markets before engaging in upgrading activities with value chain operators. Thus, the value chain approach starts from an understanding of the consumer demand and works its way back through distribution channels to the different stages of production, processing and marketing (GTZ, 2006). Globally livestock ownership currently supports or sustains the livelihoods of an estimated 700 million rural poor, approximately 70% of the world's rural poor population (PPLPI, 2001).

The dairy cow is one of the most important investments a farmer can make to improve their standing because of their inherent value, the nutritional valuable milk produced, the work they can perform, and the way it can help diversify farming activities.

The formal dairy chain involves seven distinct value adding activities from production of the milk through reaching to the final consumer in the market. These activities include input supply, milk production; Raw milk transportation, bulking and cooling, processing and packing, transporting processed milk and milk products and retailing gathering (bulking); processing; transportation; and retail trading .

Input supply includes the supply of all inputs that are required by smallholder milk producers and dairy commercial farms. Different dairy value chain actors are engaged in supplying feed, artificial insemination, veterinary services, equipments and machinery, and packaging materials (Land O'Lakes, 2010).

The informal dairy value chain involves direct delivery of fresh milk by producers to consumer in the immediate neighborhood and sale to itinerant traders or individuals in nearby towns. In the informal market, milk may pass from producers to consumers directly or it may pass through two or more market agents to local consumers and neighboring countries (Somaliland and Kenya) consumers (Land O'Lakes, 2010).

2.4. Historical events of dairy development in Ethiopia

In the first half of the 20th century, dairying in Ethiopia was mostly traditional system, Ahmed et al. (2003), Modern dairying started in the early 1950s when Ethiopia received the first batch of dairy cattle from United Nations Relief and Rehabilitation Administration (UNRRA). With the introduction of these cattle in the country, commercial liquid milk production started on large farms in Addis Ababa and Asmara (Ketema, 2000). Government intervened through the introduction of high-yielding dairy cattle in the highlands in and around major urban areas. The government also established modern milk processing and marketing facilities to complement these input-oriented productions.

The recent political developments in Ethiopia coincide with three phases of dairy development policy. These include the Imperial regime, characterized by almost a free market economic system and the emergence of modern commercial dairying (1960-74), the socialist(Derg) regime that emphasized a centralized economic system and state farms (1974-91), and the current phase under the structural adjustment program and market liberalization (1991-present. These three phases, the country followed a distinct political path and development policies that directly and indirectly influenced the dairy sector (Ahmed et al. 2003). Overall, policy changes during these periods were successful in reinvigorating a dairy sector that had been gravely affected by the socialist regime, (Dawit W, 2010).

2.5. Overviews of dairy production systems in Ethiopia

Livestock production systems are considered as subset of the farming systems,(Sere and Steinfeld ,1995), including cases in which livestock contribute more than 10% to total farm output in value terms or where intermediate contributions such as animal traction or manure represent more than 10% of the total value of purchased inputs. There are different classification criteria for livestock production systems in general and dairy production systems in particular. For example, based on criteria such as integration with crops, relation to land, agro-ecological zones, intensity of production and type of product, the world livestock production systems are classified into 11 systems (Sere and Steinfeld, 1995). Of these livestock production systems, mixed farm rain fed temperate and tropical highlands

(MRT system) is by far the largest. Globally, it represents 41% of the arable land, 21% of the cattle population, and 37% of dairy cattle (Sere and Steinfield 1995).

Dairying is practiced almost all over Ethiopia involving a vast number of small or medium or large-sized, subsistence or market-oriented farms. Based on climate, land holdings and integration with crop production as criterion, dairy production systems are recognized in Ethiopia; namely the rural dairy system which is part of the subsistence farming system and includes pastoralists, agro-pastoralists, and mixed crop–livestock producers; the pre-urban; and urban dairy systems (Azage and Alemu 1998; Ketema 2000; Tsehay2001; Dereje et al. 2005). The first system (pastoralist, agro pastoralist and highland mixed smallholder production system) contributes to 98%, while the peri-urban and urban dairy farms produce only 2% of the total milk production of the country (Ketema 2000).

The rural system is non-market oriented and most of the milk produced in this system is retained for home consumption. The level of milk surplus is determined by the demand for milk by the household and its neighbors, the potential to produce milk in terms of herd size and production season, and access to a nearby market. The surplus is mainly processed using traditional technologies and the processed milk products such as butter, ghee, *ayib* and sour milk are usually marketed through the informal market after the households satisfy their needs (Tsehay 2001).

2.6. Feed resources

Feed availability is key to productivity of dairy animals. Feed resources can be grouped into four main categories, namely, natural grasslands, established pastures, crop residues, and agricultural by-products. Napier and Rhodes grass are the major cultivated forages with the former being more widely grown. Crop residues, particularly maize stovers, are the major feed during the dry seasons. The stovers are usually high in roughage, but low in nutritive value (Immaculate N, 2014).

For their nutrition, most of the livestock of the country depend almost entirely on the herbage that grows on non-arable, natural lands. Other resources include grazing of fallow land between crop fields and crop residues from cropping activities. The density and type of natural vegetation is affected by the amount and distribution of rainfall. Even though natural-

pasture grazing-lands are the principal source of nutrition for livestock, most of these pastures, in the present state of management, do not provide adequate nutrition and would rarely support milk-yields of over 3 to 4 kg per cow per day. Seventy three percent of the feed is provided from natural grazing; 14% from crop residues and only 0.2% improved forages. There is still 7% deficit in the amount of dry-matter required by the livestock. This existing condition stimulates private investment in the feed resources sector to enhance the development and production of high quality feed to increase milk production per cow per day (SNV, 2008).

Farmers used feeds such as natural pasture (in front of and backyard of the house), reserved pasture, crop residues (mainly maize) and improved feeds (elephant grasses, vetch and *dasho* on terraces) (Brhanu k, 2012).

2.7. Milk production and marketing

The rural system is non-market oriented and most of the milk produced in this system is retained for home consumption. The level of milk surplus is determined by the demand for milk by the household and its neighbors, the potential to produce milk in terms of herd size and production season, and access to a nearby market. The surplus is mainly processed using traditional technologies and the processed milk products such as butter, ghee, *ayib* and sour milk are usually marketed through the informal market after the households satisfy their needs (Tsehay, 2001). Pastoralists raise about 30% of the indigenous livestock population which serve as the major milk production system for an estimated 10% of the country's human population living in the lowland areas. Milk production in this system is characterized by low yield and seasonal availability (Zegeye2003).

The highland smallholder milk production is found in the central part of Ethiopia where dairying is nearly always part of the subsistence, smallholder mixed crop and livestock farming. Local animals raised in this system generally have low performance with average age at first calving of 53 months, average calving intervals of 25 months and average lactation yield of 524 liters (Zegeye 2003). Peri-urban milk production is developed in areas where the population density is high and agricultural land is shrinking due to urbanization around big cities like Addis Ababa. It possesses animal types ranging from 50% crosses to

high grade Friesian in small to medium-sized farms. The peri-urban milk system includes smallholder and commercial dairy farmers in the proximity of Addis Ababa and other regional towns. This sector owns most of the country's improved dairy stock (Tsehay 2001). The main source of feed is both home produced or purchased hay; and the primary objective is to get additional cash income from milk sale. This production system is now expanding in the highlands among mixed crop–livestock farmers, such as those found in Selale and Holetta, and serves as the major milk supplier to the urban market (GebreWold et al. 2000). Urban dairy farming is a system involving highly specialized, state or business men owned farms, which are mainly concentrated in major cities of the country. They have no access to grazing land. Currently, a number of smallholder and commercial dairy farms are emerging mainly in the urban and peri-urban areas of the capital (Felleke and Geda 2001; Azage 2003) and most regional towns and districts (Ike 2002; Nigussie2006).

Smallholder rural dairy farms are also increasing in number in areas where there is market access. According to Azage and Alemu (1998), the urban milk system in Addis Ababa consists of 5167 small, medium and large dairy farms producing 34.65 million liters of milk annually. Of the total urban milk production, 73% is sold, 10% is left for household consumption, 9.4% goes to calves and 7.6% is processed into butter and *ayib* (cheese). In terms of marketing, 71% of the producers sell milk directly to consumers (Tsehay 2001).

Dairy products in Ethiopia are channeled to consumers through both formal and informal dairy marketing systems. Until 1991, the formal market of cold chain, pasteurized milk was exclusively dominated by the DDE which supplied 12% of the total fresh milk in Addis Ababa (Holloway et al., 2000). Even though the proportion of milk channeled through the formal markets is still small, since 1991 the supply of milk and other dairy products from non-state actors (private and cooperatives dairy firms) have increased,(SNV,2008).

The **informal market** involves direct delivery of fresh milk by producers to consumer in the immediate neighborhood or sale to itinerant traders or individuals in nearby towns. In the informal market, milk may pass from producers to consumers directly or through two or more market agents. The informal system is characterized by no licensing requirement to operate, low cost of operations, high producer price compared to formal market and no regulation of operations,(SNV,2008).

In Ethiopia, 95% of the national milk is marketed through informal channels and is unprocessed. The traditional processing and marketing of dairy products, especially traditional soured butter, dominate the Ethiopian dairy sector. Only 5% of the milk produced is marketed as liquid milk due to underdevelopment of infrastructures in rural areas. Hence, the informal (traditional) market has remained dominant in Ethiopia. Production is non-market oriented and most of the milk produced is retained for home consumption.

Formal milk markets are particularly limited to peri-urban areas and Addis Ababa. The formal market appears to be expanding during the last decade with the private sector entering the dairy processing industry in Addis Ababa, (SNV,2008).

2.8. Gender roles in dairy cattle farming

The activities performed in the dairy enterprise are numerous. Most of these are performed daily, implying that dairy farming is a labor intensive enterprise. The availability of labor, capital and land (in terms of quality and quantity) in a given situation determines to a large extent which cattle management system is the most appropriate e.g., zero-grazing (intensive system), tethering, and pad docking, and herding (extensive system).

Different systems require different land, labor and capital input, and they vary in quantities of milk produced. Special attention should be paid to the role of women in this respect. As part of their domestic, agricultural and community duties, women often perform important tasks relate to dairy husbandry, including looking after the animals, feeding and watering them, cleaning sheds, milking and processing (Immaculate N,2014).Due to these constraints notable changes are being seen in the division of labor meaning that both genders are actively participating in all activities.

Women are more disadvantaged than men in the context of value chain operations (Lone R, et al, 2010).Women and men are likely to be involved at different stages of the chain as producers and entrepreneurs, in marketing and as consumers. Those areas where women are involved are often less visible and may be overlooked in both analysis and development. Large parts of the value chain, which are essential to upgrading, are often ignored, particularly home working, 'putting out' and temporary work. These are generally very important in explaining how value chains operate and indicate critical links at which

upgrading or change should happen in order to bring about development of the chain as a whole, and for poverty reduction,(Linda M,et.al.,2009).

2.9. Labor aspects of dairy development

The key characteristic of labor in Africa is that it is highly gendered and that women work much longer hours than men do. Both men and women work on oriented activities while most of the domestic work is left to women. Because of this arrangement, women in general work longer hours than men do (Charity K, 1999).

Generally, it is assumed that women tend to contribute highest labor to tasks that are performed daily while for men it is mainly in tasks performed weekly or seasonally. For example, planting of forage is carried out during the wet season while spraying is on weekly basis and is mostly done by men while milking is carried out daily, a chore that is mostly performed by women.

Milk production implies a basic and compulsory daily routine of milking, feeding, watering and taking care of the animals. Other major activities related to milk production are the production, harvesting and cutting of fodder crops and the processing, marketing and transport of inputs and outputs. Seasonal differences in feeding, watering and milking have to be taken into account as well as seasonal changes in the labor input of different household members and their relationship to other farm and non-farm activities, (Charity K, 1999).

Apart from the farm level activities mentioned above in dairy farming there are also other activities like health management where animals are dewormed, sprayed to control ticks, vaccinated against diseases and treatment for diseases, procurement of animal supplementary feeds, drugs used in disease and pest control, veterinary services and research and development where the farmer needs to find information on the best breeds to keep, and improve on breeding practices, general animal care for high productivity.

In many smallholder cattle-raising enterprises the role of women, which varies according to region, culture and class is crucial. Unfortunately, this is frequently insufficiently recognized, as is the usefulness of local beliefs and knowledge (Immaculate N, 2014).

Important dairy farm operations are milking, cleaning milk containers, milk storing and preserving, quality control, barn cleaning, milk marketing, milk processing and butter marketing. Key dairy herd management practices are feeding, watering, health management, pasture management and heat detection. The main source of labor for these operations was family. Members of household have different responsibilities for different dairy farm operations and herd management practices. For example, pasture management and cattle watering are handled by all members. However, female contribute to most of the dairy farm operations.(Brhanu k,2012).

This information is important in targeting training and extension services to different members. However, labor is in shortage during January to May, surplus during June to August and sufficient during the remaining months over year. About 61% of farmers reported that labor was not readily available when needed for livestock production. Farmers used different strategies to overcome labor shortages; daily labor (3.6%), traditional labor pooling system (2.8%) and relative labor (0.8%). Households commonly hire labor for barn cleaning, feed collection, transporting grasses and plowing land for forage development. Other strategies used during children schooling were tethering, stall and home feeding. (Brhanu k, 2012).

2.10. Access to and control over resources

The accessibility of major resources such as land, water, livestock and capital determines to what extent (categories of) people can participate in dairy development activities. Participation not only means taking part in the work, but also being in the position to take management decisions concerning the allocation of resources and the production process itself.

Women and the rural poor are less likely to have control over resources. Constraints must be identified and special strategies to overcome these should be developed. Land, water and capital are major resources and the rights to them are intricately interwoven with the social structure of the community. The ownership of cattle and/or its use is another realm with a variety of arrangements (Immaculate N, 2014).

In many countries, women make up a larger percentage of the agricultural labor and has significant share of households in all regions are headed by women, yet their access to productive resources and services are limited (Ephrem T, et.al. 2013). Women and girls may or may not control, or be part of, household decision-making processes, especially in relation to the disposal of animals and animal products. (The World Bank, Food and Agriculture Organization, and International Fund for Agricultural Development, 2009).

2.11. Gender division of roles in a dairy value chain

A list of chores along the dairy value chain was listed and from the list men and women were asked to choose the tasks they perform. These chores were preparation of land for fodder planting, planting of fodder, weeding of the fodder, harvesting feeds, buying of supplementary feeds, feeding of the animals, watering of the dairy cows, shed cleaning, parasite disease control(spraying and vaccinations), milking and selling of milk. They were also asked to indicate the time taken to perform the tasks and frequency at which they perform the tasks (Immaculate N, 2014).

There is an increasing awareness of important and traditional role of female in dairy production. Dairy production provides female with a regular daily income, vital to household food security and family well being. In past, development interventions targeted male and changes introduced frequently resulted in higher labor input by female while their control over production and output diminished. Gender differences are now more often taken into account at all stages of development planning and management (Almaz, 2000).

- ❖ Each member of a household performs various roles related to dairy production and management;
 - Female particularly are engaged in cleaning, feeding, milking a cow, processing milk and marketing dairy products (Berhanu *et al.*, 2006a). However, the benefits obtained from dairy are mainly controlled by household head (men) and the decision making and access to milk products are rarely controlled by female.
 - Girls between ages of 7 and 15 are mostly responsible for managing calves, chickens and small ruminants,

- While male and older boys are responsible for treating sick animals, ruminants (Brhanu k, 2012).

Example, the study done by Brhanu kuma in the southern Ethiopia indicates that, women have higher contribution in the dairy value chain. That is, barn cleaning 66.5%, cleaning milk container 90 women and 10% by girls, milking cow 93% women and 7% by girl, milk processing by women is 76% by girl 19.7% and boy 4.3%, milk and butter marketing 70% by women, dairy animal care 54.7% and 31.7% by men, caring for calves 62.7% by women, buying dairy animal 62.6% dominated by men and 20.6% women, feeding dairy cow women 40.8% and men 33.2% the rest is done by boys and girls. More men at 86.7 per cent are involved in selling milk compared to the women at 56.7 per cent. According to the milk collectors, they receive milk from men more often than women and men are the ones who check and confirm delivery reports from and at the factories (Immaculate N, 2014).

On weeding animal feed, a number of men at 50 per cent felt it is a light duty that should be performed by women while a hundred per cent of women felt it was a duty that they can do without any problems. This perception was mostly influenced by the nature of work and had no cultural influence (Immaculate N, 2014). The women's labor and responsibilities in animal production remain under recognized and underappreciated by those designing and implementing livestock policies and plans (IFAD 2004).

2.12. Gender participation in milking

Milking is seen as a woman's task. This statement was also supported by majority of the participants who said their culture does not support men milking cows. Those who said both men and women do milk were at 53.3% and this came from those whose culture does not prohibit them from milking and others felt that milking is work like any other and is just a means to an end which is getting money and milk for family use (Immaculate N, 2014).

Women have close engagement in the production and marketing of milk and milk products. They perform most of the production activities such as feeding, watering, animal hygiene, day to day management, milking and processing. (IPMS, n.d.)

Milk production and sales are one sector where women are involved, but it is important to note that gender biases remain prevalent in the dairy sector (The World Bank, Food and Agriculture Organization and International Fund for Agricultural Development, 2008).

2.13. Decision making in regard to sharing accrued profits

To determine who makes decision when it comes to sharing of profits accrued along the dairy value chain, men and women were asked to list other stages apart from sale of milk along the dairy value chain where revenue is accrued and who collects proceeds and how the proceeds are shared. They also responded to the question of property ownership which does influence decision making process .joint ownership of property is more common and this fact plays an important role in decision making (Immaculate N, 2014).

Women in rural areas sell and control income from butter, while women in peri-urban and urban areas sell and control income from milk.(IPMS, n.d.)

CHAPTER THREE

MATERIAL AND METHODOLOGY

3.1 Description of the study area

In the northern Ethiopia there are 7 zones and the central zone of Tigray is one of these zones that located at central part of Tigray and the head office of it is located at Axum town. The study Woredas rural Adwa, urban Adwa, Axum and Laelay Maychew are part of the central zone. The zone is about 250km and 1033 km far away from Mekele and the capital city Addis Ababa respectively. Languages spoken in this area is Tigrigna which is the regional mother tongue. Laelay Maychew and Adwa woredas have Weinadega climatic condition with an average annual rainfall amount ranges from 650 and 850mm and temperature ranges from 12°C and 27°C and regarding to the geographical coordinates Laelay Maychew woreda has 14°07'35''N and 38°43'15''E at an elevation of 2131m above sea level. Traditional agriculture is the main sources of food and income for smallholders in central zone of Tigray, northern Ethiopia.

The climate condition of the study/zonal report/ area is suitable for livestock production, due to this these Woredas are populated in livestock, i.e. the number of cattle is 1,027,515, sheep's 545,789, goats 1,418,583, pig animals 159,042, poultry 1,932,998 (Agricultural office of central zone of Tigray, Jan2008,). According to these Woreda's Agricultural and Rural Development Office Adwa and Laelay Maychew woreda, cattle 69328 and 58477, goat 96409 and 59589, sheep 53020 and 22242, poultry 131790 and 63944 and others respectively (Agricultural and rural development office of Adwa and Laely maychew Woreda, 2007 E.C.).

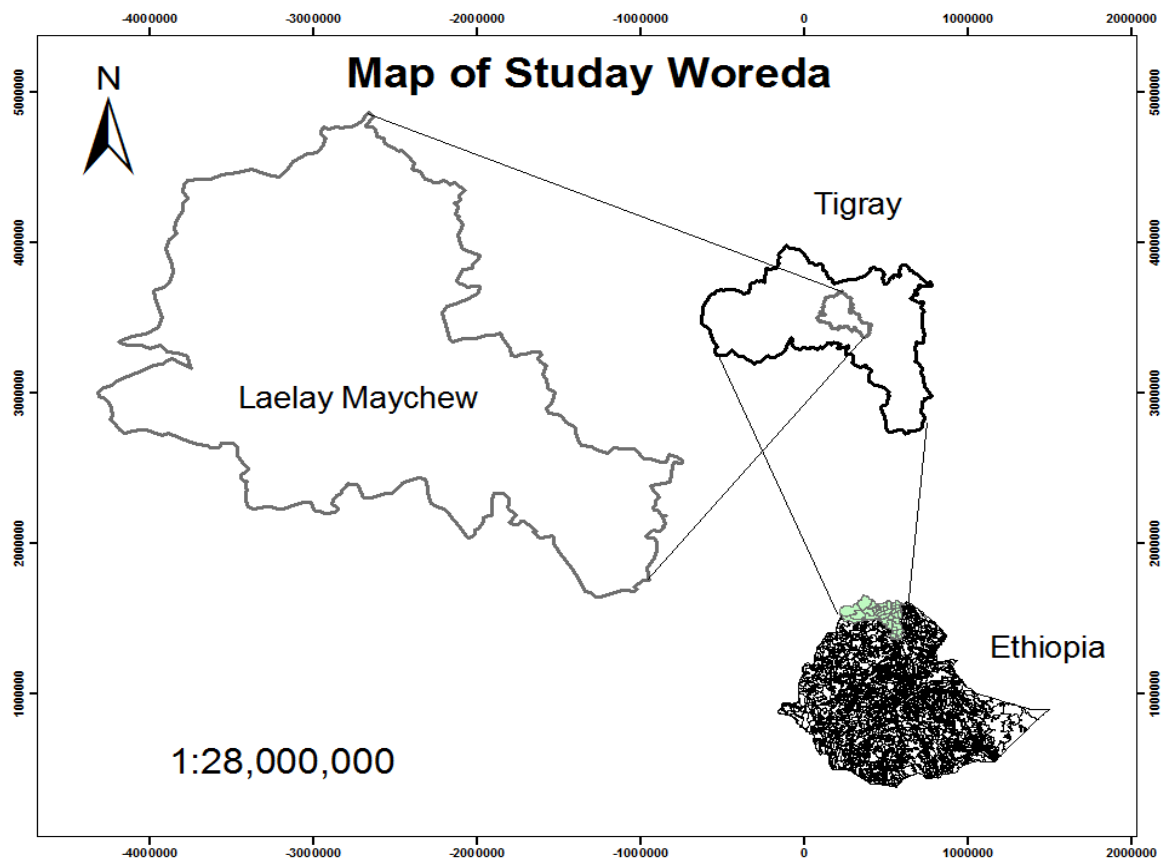


Figure 1.Map of study area

3.2 Research Design

This research employed both qualitative and quantitative data. The data was both primary and secondary. The primary data were collected using four methods namely survey, key informant interview, focus group discussion and method of observation. Both structured and open ended questionnaires, interview checklists and focus group discussion guides were used throughout the data collection process. Be it quantitative or qualitative, data was analyzed using appropriate statistical analysis methods. As parts of descriptive statistics different graphs, charts and tables were constructed. The overall data management process was handled using the Statistical Package for Social Scientists (SPSS Ver. 18).

3.3 Sampling Design

The researcher has taken the respondents from both rural and urban area collect the primary and secondary data. The primary data collect from dairy farm owners/farmers/ both from rural and urban, traders and consumers was the main respondent. four kebele from two rural wordas/betehans, soloda from Adwa and Hatsebo, Sefeho from Laelay mai-chew and four kebele from urban wordas/Hwelti, Hayelom from Axum and Mebale, Hayelom from Adwa/were selected based on the number of dairy animals. Totally 220 sample respondent 120 from rural and 100 from urban respondent. Additionally, selected member of society of four kebele were discusses as focus group discussion and four kebele key informant or DA was participated. The secondary data also collected from the Agriculture and Development office of central zone and these rural werdas and the office Urban Development and trade of these urban werdas.

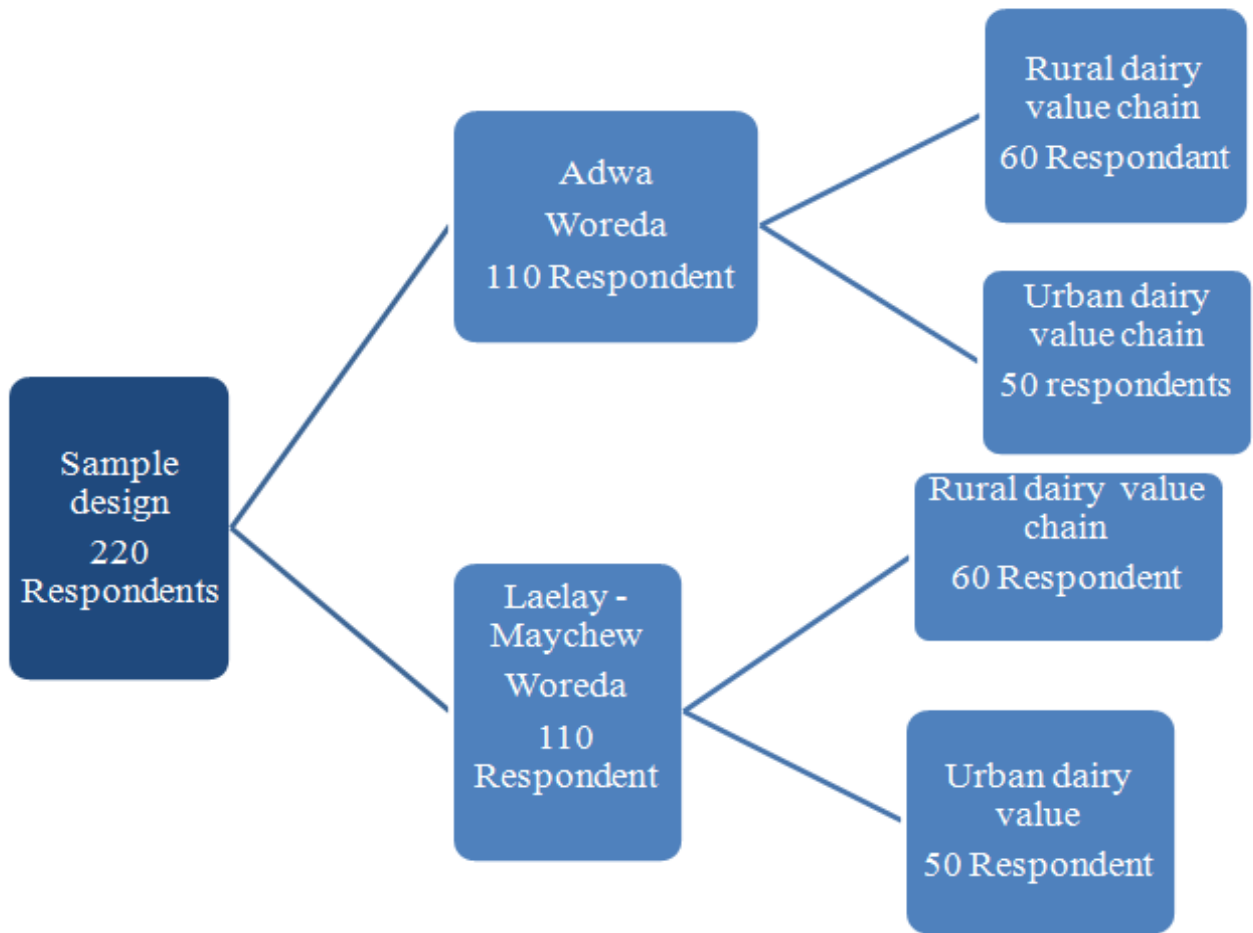


Figure 2.Sampling design

3.4. Sample Size and sampling procedures

The sample size for this study was two hundred twenty (220) individuals from both woredas i.e., 110 respondents from Adwa woreda and 110 respondents from Laelay Maichew wereda; which include 60 from rural areas and 50 from urban centers each. The unit of analysis (respondents) include the value chain starting from input side up to consumption that is rural and urban dairy farmers which participated in producing, processing, marketing and consumption and the urban trader (hotels, restaurants and cafes that buy and sale dairy products) and finally consumers).

In all of the study areas both the spouses (husband and wife) were included as respondents in the different methods of data collection. As part of the ethical clearance, the willingness of both the husband and the wife were secured in the form of a oral or written consent. It was

also being clearly communicated to the respondents that they can withdraw from the interview at any stage of the data collection process.

Thus, as part of the sampling procedure, the respondents were stratified by rural urban and then Tabias (two from rural and two from urban) areas were purposely selected using the number of dairy holders. From each Tabia, a proportional sample size of respondents was selected using simple random sampling (by giving an equal chance of being actually included to the study to each member of the population). Thus, the chance of giving an equal opportunity for anyone to be included in the study makes the research generalize-able.

3.5. Methods of Data Collection

Generally speaking, the study used both primary and secondary sources of data. Each of the methods and their specific techniques are elaborated as follows.

3.5.1 Primary Methods

This study used four types of primary methods of data collection. These are survey method, key informant interviews, focus group discussion, and method of observation. The details are discussed below.

3.5.1.1 Survey

A survey questionnaire was administered to individuals from the sampled households. The set of questionnaires were both open ended and closed questions focusing on the value chain system under the study.

3.5.1.2. Key informant interviews

These interviews were carried out on six Tabias/Kebelle/and the members included development agents, women and youth affair office experts of the respective Woredas, representatives of women and youth associations, experts of the Micro and Small Enterprises (MSEs) of the respective urban areas. These respondents were expected to give insights on

the gender roles among the dairy value chain. Their response was also used to triangulate the information received from the individual respondents at household level.

3.5.1.3. Focus Group Discussions (FGDs)

FGDs were carried out to verify some information given by the individual respondents. The FGDs were used to the social interaction and spontaneous thought process that inform decision making. The FGDs were held in groups of 6 - 8 participants. The focus groups discussions were expected to give more information on the division of work for men and women /gender roles / regarding the activities along the value chain. Elders, community leaders, religious leaders and some prominent individuals were included as members of the discussion to be held in groups.

3.5.1.4. Observation

The researcher employed direct observation method just to see the degree of participation of both sexes in the overall value chain process. This was included the input side, processing side, marketing aspect and the utilization of the outputs.

3.5.2. Secondary sources

Books, journals, newsletters and some other sources which are either published or unpublished were used as secondary sources of data. To be specific, secondary data was gathered using the aforementioned methods from office of Agriculture and Rural Development, Women Affairs Office, Youth and Sport Affairs Office and MSE offices of the respective Woredas.

3.6. Data analysis

The data management process was handled using Statistical Package for Social Scientists (SPSS Ver. 18) and the data analysis was done using both descriptive. As parts of the descriptive analysis different graphs were drawn, charts were constructed and tables were tabulated. In addition to these pictorial representations, descriptive measures such as percentages, deviation and coefficient of variation were calculated.

CHAPTER FOUR

DATA ANALYSIS, DISCUSSION AND PRESENTATION

4.1. Introduction

The purpose of the study is to determine gender roles in a dairy value chain. In this chapter, the researcher presents the research findings revealed after data analysis. The information is also interpreted and presented in form of graphs, tables. The respondents in this research were rural and urban dairy farmers, urban hotel and cafeteria owners, key informants and focus group discussions. The respondents are 180 from rural and urban dairy farmers, 40 from hotels and cafes owners, 6 key informants; from development agents, urban agriculture experts and 4 focus group discussions.

To determine the questionnaire return rate, there were 220 questionnaires administered to the farmers and hotels and cafes and all of them were returned. The entire person's who were supported to participate in the in-depth interview and FGD also fully participated.

4.2. Demographic characteristics of respondent

4.2.1. Sex composition of the respondent

The sex composition of the respondent is very important in productivity and equal participation in dairy farming. Table 1 indicates 52.7% males and 47.3% female from three sample units means from rural dairy farm holder respondent 52.5% male, 47.5% females; from urban Woredas dairy farm holder 55% male and 45% females and from hotels and cafes holder both male and female were equal 50% participated in this research.

Table 1.Sex of respondent

R.N	Sex	Rural Respondent		Urban Respondent		Hotels and cafes respondents		Total Respondents	
		Frequ ency	%	Frequ ency	%	Frequ ency	%	Frequency	%
1	Male	63	52.5	33	55	20	50	116	52.7
2	Female	57	47.5	27	45	20	50	104	47.3
3	Total	120	100	60	100	40	100	220	100

4.2.2. Age structure of the respondent

Age is one of the household characteristics which is very important to describe households'

Situation and can provide a clue on working ages of households. It is assumed that age would have a relationship with farmer's investment and decisions on the value chains of dairy production. Table 2.indicats that 69.5% of the respondents at age range of 31-50 year and 16.8% 51-65years old which is more productive age and 11.4% at 18-30 year, 16.8% above 66 year were participated.

Table 2.Age structure of the respondent

R.N	Range of Age	Rural		Urban		Hotels and cafes		Total	
		Frequ ency	%	Frequ ency	%	Frequ ency	%	Frequ ency	%
1	18-30 year			8	13.3	17	42.5	25	11.4
2	31-50 year	94	78.3	38	63.3	21	52.5	153	69.5
3	51-65 year	21	17.5	14	23.4	2	5	37	16.8
4	Above 66 year	5	4.2	-	-			5	2.5
Total		120	100	60	100	40	100	220	100

The above table 2, indicates that 78.3% from rural and 63.3% from urban respondents are at the age range of 31-50 years old and 17.5% from rural and 23.4% from urban respondent are at the age range of 51-65 years old this indicates that most of the participant are at a productive age. From the hotels and cafes respondent 42.5% at the 18-30 year and 52.5% at the age of 31-50 year and 5% from 51-65 years old.

4.2.3. Educational statues of the respondents

The educational level of the respondent is indicates in table below/ the table 3. / there is difference between study areas of the rural, urban and hotels and cafes, which is 23.3% from rural dairy farm owner and 8.3% from urban and no from the hotel and cafes respondents were illiterates/never educated and 31.7% from rural, 13.3% from urban and no from hotels and cafes respondents were at the education level of 1-4 grade; and 29.2% from rural and 36.7% from urban and 10% from hotels and cafes respondent were at education level of 5-8 grade; 8.3%, from rural, 31.7%, urban and 40% from hotels and cafes respondents respectively were at the education level of 9-10 grade and 27.5% diploma and 10% degree holders was from hotel and cafes. This result indicates that 84.2% from rural respondent and 58.3% were from urban dairy farm holders and only 10% from hotels and cafes were below the education level of 8 grades which indicates that rural dairy farmers were at lower level of education than of urban and hotel and cafe respondent units.

Table 3.Education statues of respondent

R. N		Rural		Urban		Hotels and cafes		Total	
		Freq uenc y	%	Frequ ency	%	Frequ ency	%	Frequ ency	%
1	Illiterate	28	23.3	5	8.3			33	15
2	1-4 grade	38	31.7	8	13.3			46	20.9
3	5-8	35	29.2	22	36.7	4	10	61	27.7
4	9-10	10	8.3	19	31.7	16	40	45	20.4
5	11-12	4	3.3	2	3.3	5	12.5	11	5
6	Diploma	5	4.2	4	6.7	11	27.5	20	9
7	First degree	-	-	-	-	4	10	4	1.8
	Total	120	100	60	100	40	100	220	100

According to table3 from the total 220 respondents 27.7% from 5-8 grade, 20.9% from 1-4 grade, 20.4% from 9-10 grade and 15% are illiterate from rural respondent, 9% diploma and 1.8% first degree holders these are from hotels and cafes. This indicates that the sub sector is stile the work of lower level of educated persons.

4.3. Dairy value chain

Dairy value chain is the process of activities starting from input, production, processing, transporting, marketing and consumption of dairy products.

The input side includes preparation of dairy animal shade, dairy cow, dairy cow feed, water, animal health service, dairy cow breeding /AI /service, dairy product containers, Production of milk, processing of dairy products, transport and selling of milk and butter and finally consuming of dairy products.

4.3.1. Types of dairy cow

Types or genetic of dairy cow determines milk productivity. In the study area the respondent holds three type's dairy cows; local cow, cross breed, exotic and some respondents have two and more types of dairy cow. More of rural respondents use local cows and urban dairy producers own more cross breed and exotic dairy cows as indicated at Table4. 30.5% of the respondent holds local cow from this 41.7% are rural farmers and 4% urban farmers; the 21.7% are cross breed holders from this 32% are urban holders and 17.5% from rural respondent; the 30.6% respondents exotic cow from this 51.7% are urban and 20% are rural respondents.

Table 4.Types of dairy cow

R.N	Types of Dairy cow	Rural respondent		Urban respondent		Total	
		Frequenc y	%	Frequ ency	%	Frequ ency	%
1	Local	50	41.7	2	4	52	30.5
2	Cross breed	21	17.5	16	32	37	21.7
3	Exotic/imported breed/	24	20	31	51.7	55	30.6
4	Local and Cross breed	11	9.2	9	18	20	11.7
5	Exotic and Cross breed	12	10	2	4	14	8.2
6	Local and exotic	2	1.6	-		2	1.1
Total		120	100	60	100	1180	100

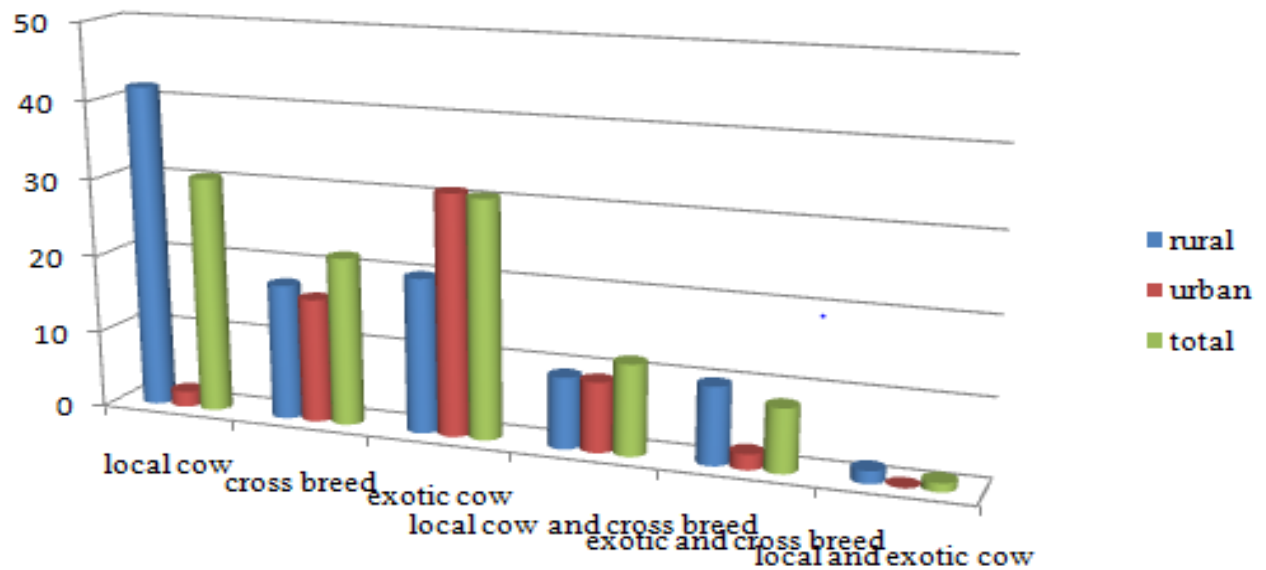


Figure 3.Types of dairy cow

The figure3. Indicates that from the respondent local cows are dominantly used by rural dairy farmers and exotic dairy cows are used by urban dairy farmers and this has influence on milk productivity per cow as assured by different researchers.

According the respondents these dairy cow get from different places like Sheraro, Humera and from local market. This dairy animal bought by themselves from local market 47.2% and 11.7% says respondents provides by government and other sources. The purpose of these dairy cows 58.3% is for milk only; 24.4% is for milk and traction and 15.6% is for milk and meat.

4.3.2. Dairy animal feed

Dairy feed is the main determinant for dairy value chain activities. The respondents use different types of dairy food; 48.8% use grazing grass and crop residues; 48.8% of the respondent use all types of dairy crop like grazing natural grasses, crop residues, and different growing grasses/alpha alpha, elephant grasses /and 2.4% different grasses .The source of dairy feed is from their own production and purchasing from market.

According the respondents they get the dairy feed 58.3% from their own and by purchasing from local market and directly from farmers, 25% by purchase only especially the urban farmers/producers/and 16.7% of the respondents from their own crop production. This

finding is related with the finding of (Immaculate N, 2014), (SNV, 2008), (Brhanu K,2012);the researchers state that the common dairy cow foods are natural grazing ,crop residues, difference grasses/elephant grass, alpha alpha /.

4.3.3. Animal health and breeding

The animal health service is very important services for dairy production activity and for productivity of milk and milk productivities. The animal health service 62.6% providing by the government only and 38.4% of the respondent gets from both governments and privet service givers. The AI/Artificial Insemination/service 100% provide by government only. This the service farmers not satisfied on its timing and access and the respondent take as one of the main problem of dairy value chain farming.

4.3.4. Milk production

The rural system is non-market oriented and most of the milk produced in this system is retained for home consumption. The level of milk surplus is determined by the demand for milk by the household and its neighbors, the potential to produce milk in terms of herd size and production season, and access to a nearby market. The surplus is mainly processed using traditional technologies and the processed milk products such as butter, ghee, *ayib* and sour milk are usually marketed through the informal market after the households satisfy their needs Milk production is the focal point on dairy farming.

According the respondent 38.9% use milk for sale and 16.7 % for family consumption as well as 44.4% use the milk for consumption and sale. The respondent use different types of milk containers, 80% or the respondent use plastic container; 12.6%uses clay pot and 3.8%are aluminum container.

4.3.5. Milk processing

Milk can uses directly and after processing or changing to milk products like butter, cheese, ghee, sour milk and other products. Milk processing is modern and cultural system mean the modern system is changing milk to pasteurized packed milk, table butter, and cheese.

According the respondent 75.5% are culturally processed milk to milk products and 25.5%are not processed they directly sale to consumer and milk sellers.

4.3.6. Milk market

In the study area milk is marketed in informal market which sales directly from producer to consumer through home to home contract system especially urban producers and hotel and cafes, there is no formal milk shop. According the respondents 50.5% sales directly to consumers; 21% sales directly to hotels and cafes and the 23.2% sales for both consumer and cafes. Milk is transported to market using different systems, 78% of the respondent transport milk by personal caring especially rural producers and 22% of the respondent milk transported using bicycle and car mostly the urban producer.

The milk was produced for family consumption and for sale. From the respondent 54% of the respondent produce milk for sale and 46% of them said that milk use only for family consumption especially the rural respondent. The research indicates that more amount of milk consume without advanced value addition processes. This finding is related with the finding of (Tsehay, 2001), (SNV,2008), they states that the milk market of Ethiopian dominated by informal market and milk sell as fresh without processing more of the produced for family consumption.

The researcher consider also the hotels and cafes which sales milk in their business and take 40 respondents to see the milk market chain. According these respondents they buy milk from urban milk producers and 30% from milk producer cooperatives and 4% is from farmers and this indicates rural producers use milk for family consumption. The hotels and cafes buy milk at average price of 13.5 birr per a litter of milk and sale to consumer at average price of 24.3 birr.

4.3.7. Milk consumption

According the hotels and cafes milk consumption culture of the society improve from time to time and 50% of their consumers are from all types' society and 15% and 35 % are government and NGO employers.

According the hotels and cafes /respondent/ 80% consumers are males and 20% are females and these respondents try to separate the milk consumers based on age of consumers' and the 60% of the respondent said that milk consumer are at age range of 18-30 years and 30% of the respondent are from 31-50 year and 5% less than 15 year and 2% are at all types of age ranges. This finding indicates that milk consumption is dominated by males and youths.

4.4. Gender role in dairy value chain

The participation of gender in dairy value chain activities like cleaning shade, caring dairy cows and calves, dairy food collection, watering , dairy animal health care, cow breeding, milking, milk container cleaning, milk store and preparation, milk churning, milk transportation, milk selling, butter selling, dairy cow purchase and dairy cow sell are the common activities.

4.4.1. Cleaning of dairy shade (bran)

According respondents all members of the family participates in cleaning dairy shad but the degree of participation is different between father and mother, girls and boys generally between males and females and the same between rural and urban dairy producers. Table 5 indicates females 61.7% in rural and 55% in urban participated.

Males are 38.3% in rural and 45% in urban participated in cleaning shade. This result indicates female in rural and male in urban participates more. Generally, 59.5% females and 40.5% males are participating in cleaning dairy cow shade.

Table 5.Role division of family member in cleaning dairy shade

R. N	Family member	Rural respondent		Urban respondent		Total	
		Frequ ency	%	Freque ncy	%	Freque ncy	%
1	Father	6	2.5	6	10	9	5
2	Mother	15	12.5	14	23.3	29	16.1
3	Girls	2	1.7	4	6.7	6	3.3
4	Boy	3	2.5	3	5	6	3.3
5	All	37	30.8	2	3.3	39	21.6
6	Father and mother	13	10.8	13	21.7	26	14.4
7	Father and boy	6	5	7	11.7	13	7.2
8	Girls and boy	17	14.2	6	10	23	12.8
9	Mother and girls	24	20	5	8.3	29	16.1
	Total	120	100	60	8.3	180	100
	Male	46	38.3	27	45	73	40.5
	Female	56	61.7	33	55	107	59.5
	Total	120	100	60	100	180	100

In both study area females are more participated in cleaning dairy shades and this finding is similar with the finding of (Immaculate.N,2014),(Charity.k,1999),(Brhanu et al,2006a),and Brhanu k,2012, which says 66% of woman's participate in cleaning of dairy shade and the finding of the researcher is 59.5% , it is so related.

Fathers were moderately involved in feeding, health follow up, breeding and selling of dairy cows and Mother was highly involved in feeding, cleaning, milking, processing and selling of dairy products/ Dawit W,2010/.

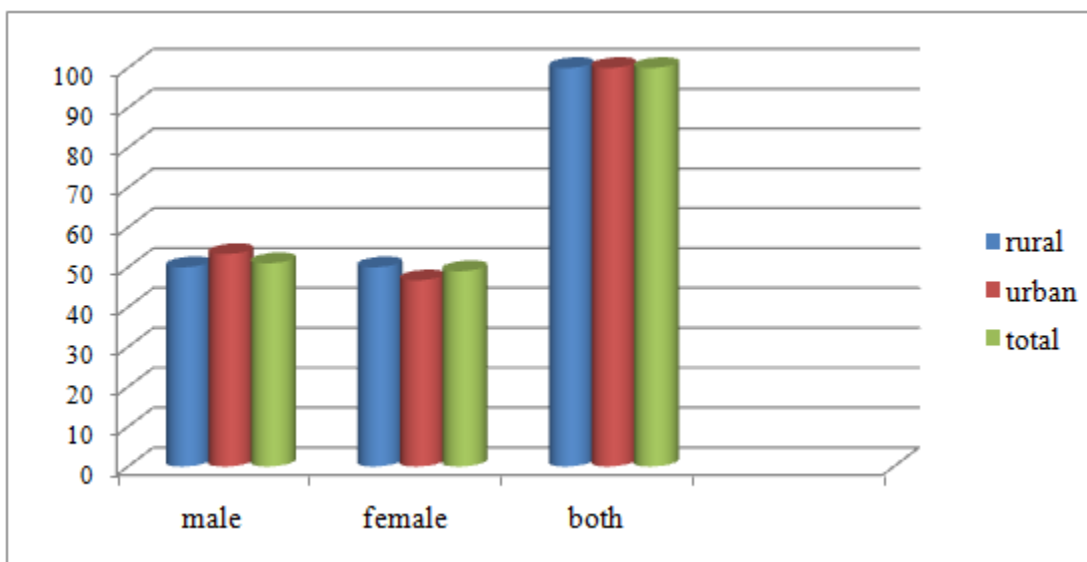


Figure 4. Gender role division in cleaning dairy shade

The above figure indicates family members specially father and mother participation on dairy shade and the result indicates that women at rural and male at urban area were more participate on the cleaning dairy shade.

4.4.2. Caring of dairy cows and calves health

According the respondents all member of the family was participating in caring of dairy cows and calves but mother and father takes the highest part. (Table 6) Indicates the participation of family member in caring dairy cow and calves health; 51% of males and 49% of females are participated in this activity.

Table 6.role division of family member in caring dairy animal health

R. N	Family member	Rural respondent		Urban respondent		Total	
		Frequen cy	%	Freque ncy	%	Frequ ency	%
1	Father	17	14.2	14	23.3	31	17.3
2	Mother	20	16.2	12	20	32	17.2
3	Girls	0	0	0	0	0	0
4	Boy	4	3.3	1	1.7	5	2.8
5	All	18	15	3	5	21	11.6
6	Father and mother	50	41.7	20	33.2	70	38.9
7	Father and boy	5	4.2	5	8.3	10	5.5
8	Girls and boy	0	0	0	0	0	0
9	Mother and girls	6	5	4	6.7	9	5
	Total	120	100	60	100	180	100
	Male	60	50	32	53.3	92	51
	Female	60	50	28	46.7	88	49
	Total	120	100	60	100	180	100

The research tries to compare between rural and urban respondent results. Males 50 and 53% and female are 50% and 53.3% in rural and urban respectively participate in caring cow and calves health and this indicates both father and mother equally participated in rural area and in urban male or father takes apart.

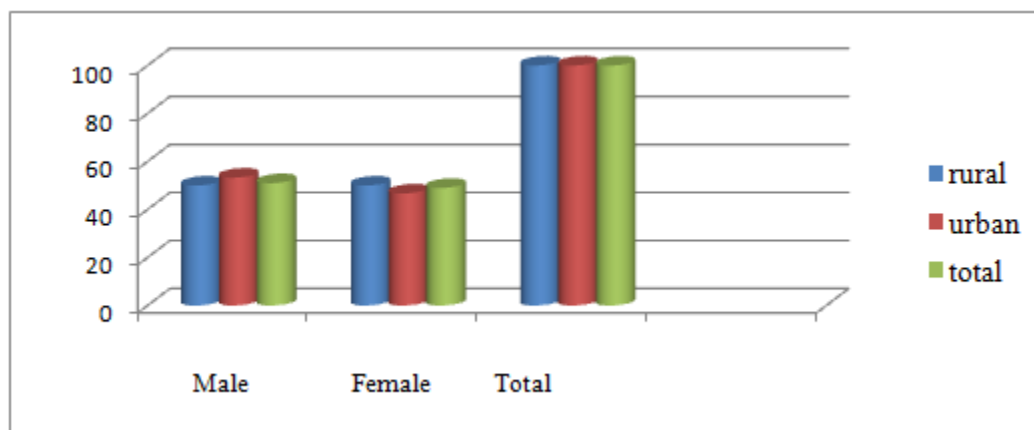


Figure 5.Gender division of role in caring dairy cow health

4.4.3. Dairy animal food collection

According the respondent the participation of family member in collection of dairy cow food is stated at (Table 7.) which indicates that 58.8% of males and 41.2% females are participated.

Table 7.Family division of role in collection of dairy cow food

R, N	Family member	Rural respondent		Urban respondent		Total	
		Frequenc y	%	Frequenc y	%	Frequenc y	%
1	Father	26	21.7	15	25	41	22.7
2	Mother	13	10.8	9	15	28	15.5
3	Girls	0	0	3	5	3	0.16
4	Boy	6	5	1	1.7	7	3.8
5	All	18	15	2	3.3	20	11.1
6	Father and mother	25	20.8	13	21.7	38	21.1
7	Father and boy	18	15	10	16.7	28	15.5
8	Girls and boy	1	0.6	2	3.3	3	1.6
9	Mother and girls	13	10.8	5	8.3	18	10
	Total	120	100	60	100	180	100
	Male	72	60	34	56.6	106	58.8
	Female	48	40	26	45.4	74	41.2
	Total	120	100	60	100	180	100

From the above table we compare between rural and urban respondents response on the participation of gender in the collection of dairy feed. Males 60% in rural and 56.6% in urban participated and females 48% in rural and 45.4% in urban are participated. Father, mother and boys respectively takes the highest part in this activity in both study areas this means, father/men/39.2% of in rural and 43.3% in urban and females 30.8% and 40% in rural and urban area and totally 44.4% men/father/ and 31.6% women/mother are participated. This finding is compared with the finding of Brhanu Kuma which studies in the southern part of Ethiopia and finds 32.2% men and 40.8% women's are participated in collecting dairy feed and there is different in this conclusion.

4.4.4. Watering of dairy animals

Based on the respondent the family member participates in the watering of dairy animals but their participation is different. Table 8, indicates that females 56.4% and males 43.8% are participated from this we can see the rural and urban participation. Females 56.7% of from rural and 55% from urban are participated and males 43.3% and 45% from rural and urban are participated. This indicates that at both study areas females are more dominant than of male in watering of animals. Mother, girls and boys are more responsible for this activity.

Table 8.Role division of family member

R. N	Family member	Rural respondent		Urban respondent		Total	
		Frequency	%	Frequency	%	Frequency	%
1	Father	1	0.6	9	15	10	5.5
2	Mother	35	29.5	14	23.3	49	27.2
3	Girls	1	0.8	1	1.7	2	1.1
4	Boy	12	10	1	1.7	13	7.2
5	All	23	19.2	4	6.7	27	15
6	Father and mother	3	2.5	13	21.7	16	8.8
7	Father and boy	10	8.3	6	10	16	8.8
8	Girls and boy	34	28.3	3	5	37	20.5
9	Mother and girls	1	0.8	9	15	10	5.5
	Total	120	100	60	100	180	100
	Male	52	43.3	27	45	79	43.8
	Female	68	56.7	33	55	101	56.2
	Total	120	100	60	100	180	100

4.4.5. Breeding dairy animal

Breeding of dairy cow can be by cultural and modern system mean by animal and artificial insemination /AI/ service. According the respondent which indicated at (Table 9.) this activity is dominated by males, 72.5% and 70% in rural and urban respectively participates. Females also 27.5% and 30% rural and urban respectively are participated in this activity.

Table 9.Gender role in breeding dairy cow

R.N	Family member	Rural		Urban		Total	
		Frequenc y	%	Frequenc y	%	Frequenc y	%
1	Male	87	72.5	42	70	129	71.6
2	Female	33	27.5	18	30	51	28.4
3	Total	120	100	60	100	180	100

Generally, from the total respondent 71.6%males and 28.4%females are participated in breeding dairy animals and this indicates that males are more responsible than of women at both study areas.

4.4.6. Milk container cleaning

Table 10.Gender role in milk container cleaning

R.N	Family member	Rural		Urban		Total	
		Frequency	%	Frequenc y	%	Frequenc y	%
1	Male	2	1.6	7	11.6	9	5
2	Female	118	98.3	53	88.3	171	95
3	Total	120	100	60	100	180	100

The above table indicates 95% of females are participating in milk container cleaning from this 23.8% are girls, and 5% males are participated more are boys. Women 98.3% and 88.3%, and males 1.6% and 11.6% in rural and urban respectively. This indicates female dominantly participate at both study areas. This finding indicates that there are no equal participation family members at both urban and rural areas and it needs change and this is related with the finding of Brhanu Kuma, which states that 90% women 10% girls participate in milk container cleaning activity the 5% difference is because of urban boys' participation.

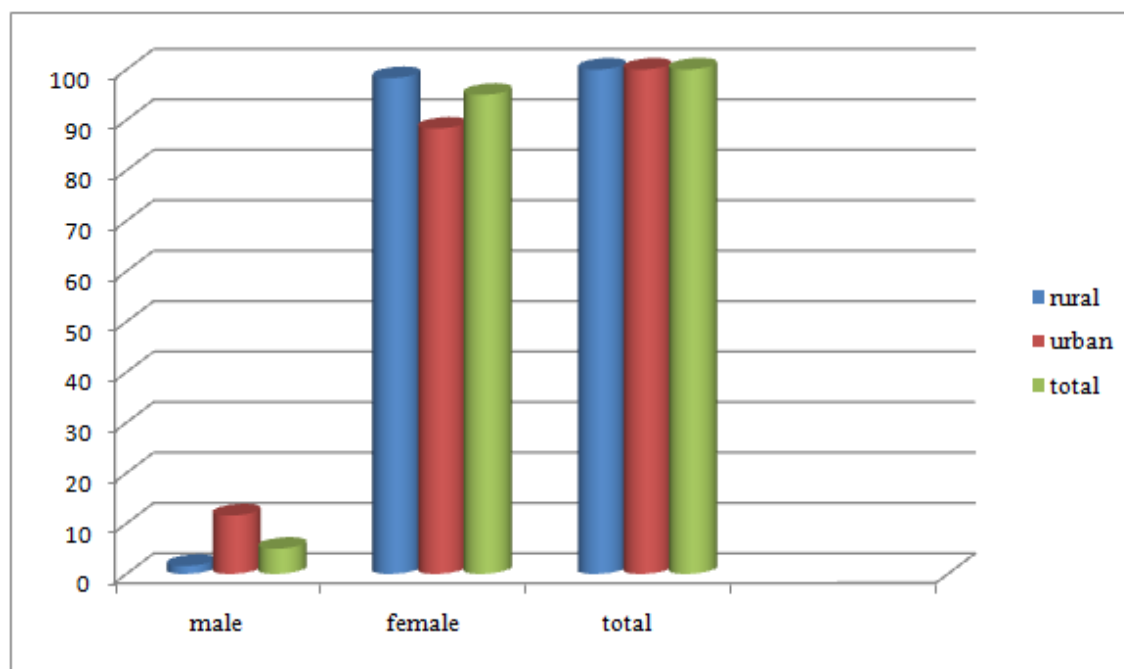


Figure 6.Gender participation milk container cleaning activity

The above fig. indicates that milk container cleaning activity dominated by women at both study areas.

4.4.7. Milk storage and preparation

According the respondent women is more dominant than of men in milk storage and preparation as indicated at Table 12, females 92.2% from this 15% are girls and males are 7.8% participate in this activity. From this female in rural 95%and urban 86.7% and male 5% in rural and 13.3%in urban are participating in the milk storage and preparation activities.

Table 11.Gender role in milk storage and preparation

R.N	Family member	Rural		Urban		Total	
		Frequenc y	%	Frequenc y	%	Frequenc y	%
1	Male	6	5	8	13.3	14	7.8
2	Female	114	95	52	86.7	166	92.2
3	Total	120	100	60	100	180	100

This finding indicates there is low division of role genders because it is female dominated work and male participation in rural is lower than of males in urban females in rural.

4.4.9. Milking and milk churning

Table 12.Gender participation in milking and milk churning

R.N	Family member	Rural		Urban		Total	
		Frequency	%	Frequenc y	%	Frequenc y	%
1	Male	4	3.3	6	10	10	5.5
2	Female	116	96.7	54	90	170	94.5
3	Total	120	100	60	100	180	100

The above table indicates that participation in milking and milk churning is female dominated.94.5 % of female and 5.5% of males are participating; from this 23.9% are girls. In both rural and urban females are 96.7% and 90% and males3.3% and10% in rural and urban respectively. This finding is related to Dawit Weldemaryam which indicates that 83 % of the milk processing activity was done by the mother and the rest done by rest of family member and Brhanu kuma, which states that females are 100% participating from this 7% are girls.

4.4.10. Milk transportation and milk selling

Table 13.Gender role in milk transport and milk selling

R · N	family member	Milk transportation						Milk selling					
		Rural		Urban		Total		Rural		Urban		Total	
		Freq uenc y	%	Freq uenc y	%	Freq uenc y	%	Fre que ncy	%	Fre que ncy	%	Frequ ency	%
1	Father	2	1.7	5	8.3	7	3.8	7	11.7	2	1.7	9	5
2	Mother	12	23	11	18.3	23	12.7	13	21.7	19	15.8	32	17.7
3	Girls	6	11	5	8.3	11	6.1	4	6.7	4	3.4	8	4.4
4	Boy	58	70	12	20	70	38.8	7	11.7	54	45	61	33.8
5	All	11	9.2			11	9.2			20	16.6	20	11.1
6	Father and Mother	4	3.3	8	13.3	12	6.6	7	11.7	4	3.3	11	6.1
7	Girls and Boy	10	83.	12	20	22	12.2	13	21.7	8	6.7	21	11.6
8	Mother and Girls	15	12.5	7	11.7	22	12.2	9	15	7	5.8	16	8.8
	Total	120	100	60	100	180	100	120	100	60	100	180	100
	Male	72	60	27	45	99	55	24	40	70	58.3	94	52.2
	Female	48	40	33	55	81	45	36	60	50	41.7	86	47.8
	Total	120	100	60	100	180	100	120	100	60	100	180	100

The above table 14 indicates the participation of family member/gender /in transporting and selling of milk which is 55% male and 45% females from these 51.6% boys and 18.5%girls, 26.5 %mother and 4.4% fathers are participation in transport milk. This indicates milk transport is the job of boys and girls and women's.

When compare between rural and urban, males in rural 60% and in urban 45% and Female 40% and 55% in rural and urban respectively participating in transporting milk. In selling milk males 52.2% and female 47.8% participating and from these 40% are boys and 15% are girls; women/mother/ 32.8% and father/men/12.2% are participating in selling milk.

To compare the result of rural and urban dairy holders respondents of male respondent 58.3%in rural and 40 %in urban and females 41.7%in rural and 60% are in urban

respondent participate in selling milk. This indicates males in rural and females in urban participate more. This is due the transportation access and in urban most of the time milk is selling at home by contract system so females are more responsible for selling milk than male because they are more time at home and the controlling power over the income so different. This finding/the rural/ is related with research done by (Immaculate N, 2014) in Kenya which states males are dominant in selling of milk.

4.4.11. Butter selling

Table 14.Gender role in butter selling

R. N	Family member	Rural		Urban		Total	
		Frequency	%	Frequenc y	%	Frequenc y	%
1	Male	5	4.3	7	11.6	12	6.8
2	Female	110	95.7	53	88.4	163	93.2
3	Total	120	100	60	100	180	100

The table15. Indicates butter selling activities is done by female 93.2% and male 6.8% and this in rural males 4.3% and females 95.7%and in urban males 11.6% and female 88.4%are participating in butter selling. This indicates females are dominant in both study areas. This finding is related with the finding of Brhanu Kuma. 70% women are participated in butter marketing; the percent difference is may be due to place difference.

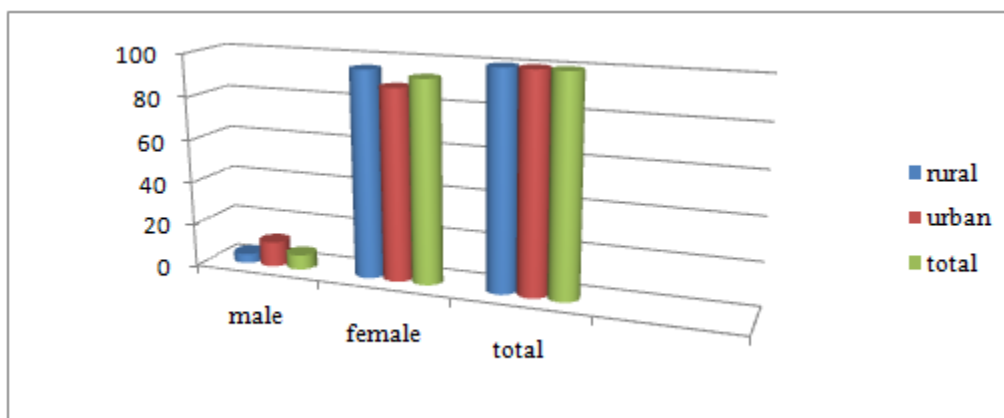


Figure 7. Gender role in butter selling

4.4.12. Purchasing and selling dairy cows

Dairy cow is the main input for dairy farming. Buying and selling dairy cows is the role of gender or family member. So the participation of genders in this activities is indicated in /Table 16. /male's 69.4% males and 30.5% females' respondent are participating in purchasing dairy cows. When compare rural and urban males 71.6% rural male and 85% urban male respondents and female 28.4% and 35% in rural and urban respectively participating purchasing dairy cow work. This indicates males dominated work at both study areas. This finding is related with the finding of Brhanu kuma which states 62.6% males and 20.6% females are participating in buying and selling dairy cows and this indicates male dominated work.

Table 15.Gender role in buying and selling of dairy cow

R · N		Purchasing dairy cow						Selling dairy cow					
		Rural		Urban		Total		Rural		Urban		Total	
		Freq uenc y	%	Freq uenc y	%	Freq uenc y	%	Freq uenc y	%	Freq uenc y	%	Freq uenc y	%
1	Male	86	71.6	39	85	125	69.4	90	75	39	65	139	77.3
2	Fema le	34	28.4	21	15	35	30.5	30	25	11	35	41	22.7
3	Total	120	100	60	100	180	100	120	100	60	100	180	100

The above table indicates that 77.3% males and 22.7% women respondents are participate in selling dairy cows. When we compare between rural and urban respondent, 75% rural male and 65%urban male and 25% rural women and 35%urban women are participating in selling dairy cow and this is dominated by males at both study area.

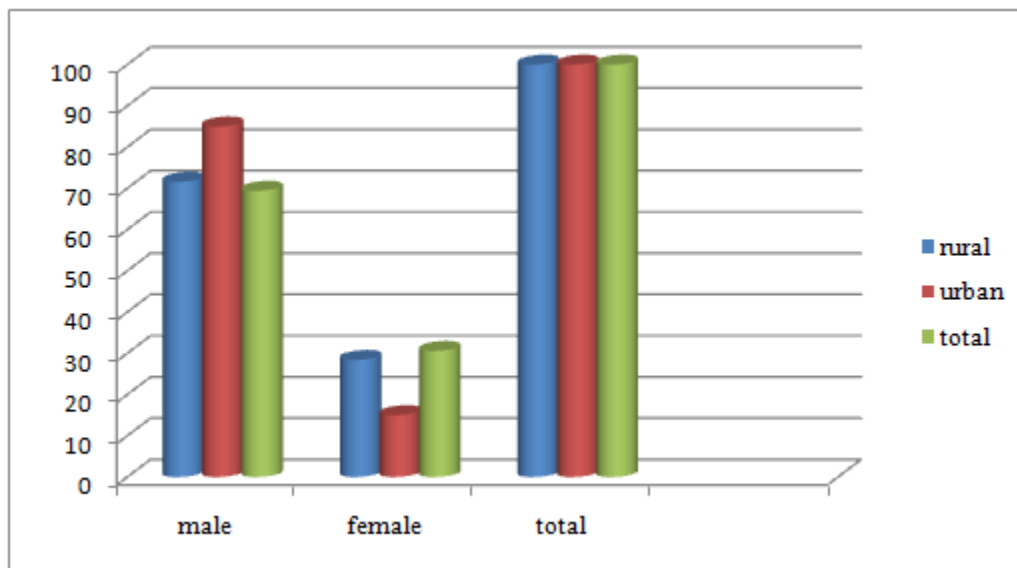


Figure 8. Gender role in purchasing of dairy cow

The focus group that participate and discuss in 4 Kebele and key informant/DAs urban agriculture Experts and gender experts also interviewed about the gender role division of dairy farming activities. Based on these respondents the work division is similar with the above discussions; that is, females are participated in cleaning dairy shade, watering, caring dairy cow and calves, milking, milk container cleaning, milk quality container, milk storage and preparation, milk churning, butter selling and males participating is food collection, dairy purchase and selling and this is cultural and wariness problem of the society.

Based on the focus group discussion indicates that females spend more time in low level dairy value chain activity than of males but they equally controlling, distribute and benefited from accrued income of dairy farming.

4.5. Decision making in regard to sharing accrued profit from Dairy income

4.5.1. Gender decision power on selling and buying dairy cows

The power to decide how to use and control over the dairy income is different between genders. As (table 17) Indicates from the respondent who answers to the question says

who decides to sell and buy dairy cow is 64.2% says mother and father are equally decide, 16% mother only and 16% men only decides on selling and buying dairy cows. In rural and urban there is no more difference in this finding, means these respondents which says both mother and father equally decides are 62.5% from rural and 18.6 % urban and mother/women is 20% from rural and 18.6% urban and men 17.5% and 13.5% rural and urban respectively.

Table 16. Gender decision making power on deciding selling and buy dairy animals

R. N	Family member	Rural		Urban		Total	
		Frequ ency	%	Freque ncy	%	Freque ncy	%
1	Male	21	17.5	8	13.6	29	16
2	Female	24	20	11	18.6	35	19.5
3	Both	75	62.5	40	67.8	115	64.2
4	Total	120	100	59	100	179	100

4.5.2. Gender decision on how to use and control the income of Dairy farming

Based on the respondent 63.3% says both mother and father decides equally on how to use the income of dairy farm and 27.5% mother and 10% father only decides and girls and boys has less power of deciding. The response of the respondent on who control and benefit from the income of dairy farm is, 47.7% says both female and men are equally benefited and 46% female and male are benefited.

Table 17.Gender decision role on using and controlling dairy income

R. N		Who decides on how to use						Who benefited from dairy income					
		Rural		Urban		Total		Rural		Urban		Total	
		Fre que ncy	%	Fre que ncy	%	Fre que ncy	%	Freq uenc y	%	Fre que ncy	%	Freq uenc y	%
1	Male	15	12.5	3	5	18	10.2	6	5	5	8.5	11	6.3
2	Female	32	26.6	17	28.3	49	27.5	56	46.7	26	44.1	82	46
3	Both	73	60.8	40	66.7	153	63.3	58	48.3	27	45.4	85	47.7
	Total	120	100	60	100	180	100	120	100	60	100	178	100

4.6. The perception of gender on division of role in dairy value activities

The perception of both male and female on the role of gender on responsibility of different activities, who works what, are they accept the work division and others indicated at table

Table 18.The perception of gender on role division in dairy activity

R. N	Activities	Gender perception on participation					
		Males		Females		Total	
		Freq uency	%	Frequen cy	%	Frequen cy	%
1	Cleaning dairy shade	72	40	108	60	180	100
2	Caring cow and calve	51	28.3	129	71.7	180	100
3	Food collection of dairy cow	121	67.2	57	32.8	178	100
4	Watering	78	43.3	93	56.7	171	100
5	Cow heath care	83	46	97	54	180	100
6	Breeding	124	68.8	56	31.2	180	100
7	Milking	11	6	167	94	178	100
8	Milk container cleaning	12	6.7	168	93.3	180	100
9	Milk quality control	10	5.6	170	94.4	180	100
10	Milk storage and preparation	9	5	171	95	180	100
11	Milk churning	9	5	171	95	180	100
12	Milk transport	92	51	86	49	178	100
13	Milk selling	91	50.5	87	49.5	178	100
14	Butter selling	17	9.4	160	90.6	177	100
15	Dairy cow purchasing	126	70	54	30	180	100
16	Dairy cow selling	120	66.7	60	33.3	180	100

The above table indicates that perception of gender in cleaning of dairy shade 60% of the respondent perceives that the role of female and 40% accept as the role of male. This perception results in practical work division which states those 59.5% females and 40.5% male participating in cleaning dairy shade as indicated at table 5. From the respondent 71.7 %are perceive/assume/ that caring dairy cow and calves is the role of female and 28.3% is says the role of male.

In food collection of dairy cow 67.2 %of the respondent says the role of male and 32.8% perceives the role of female and watering of dairy cows 56.7%of the respondent accepts that it is the role of female and 43.3% is the role of males. The health of cow and calves caring perceives 54% is the role of female and 46% is the role of males. Breeding of

dairy cows is accepted by 68.8% of the respondent as the role of male and 31.2% is the role of females.

The activities of milking, milk container cleaning, milk storing and preparation, milk quality control, milk churning, butter selling are perceive by dominant respondent as a role of female and the practical work division indicates this conclusion and dairy cow purchasing and selling is accepted as the job of male as indicated at table 12 above, 70% of the respondent accepts the dairy cow purchase as the role of male and 30% says the role of male and selling of dairy cow is perceive that 66.7% is the role of male and 33.3% is the role of female and this result also related with the result of respondent practical division of work.

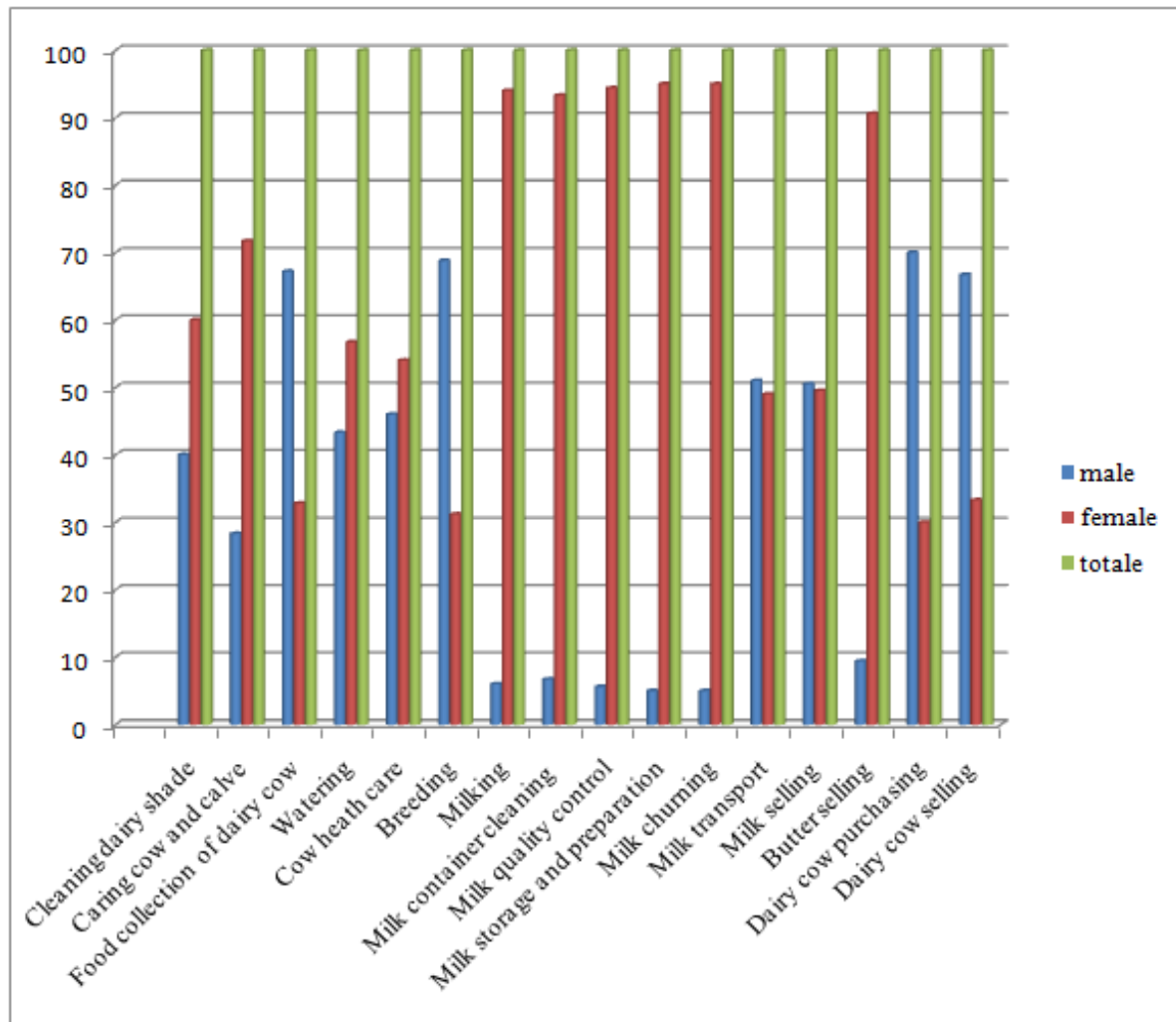


Figure 9. The perception of gender on role division of dairy farm activity

4.6. The perception of community in controlling dairy income and benefit ability

Table 19. Perception of community in controlling and benefited of income

R.N	Family member	Rural		Urban		Total	
		Frequency	%	Frequency	%	Frequency	%
1	Male	27	22.5	13	21.7	40	22.2
2	Female	93	77.5	47	78.3	140	77.8
3	Total	120	100	60	100	180	100

According the above table 20 indicates 77.8% of the respondent says a society perceives that the income of dairy product is controlled and use by females especially mother use for home expenses and 22.2% of respondent says males are controlled because he is house hold head and this is also supported by the idea of focus group discussion and key informants and this result have no more different between rural and urban respondent as indicated at the above table.

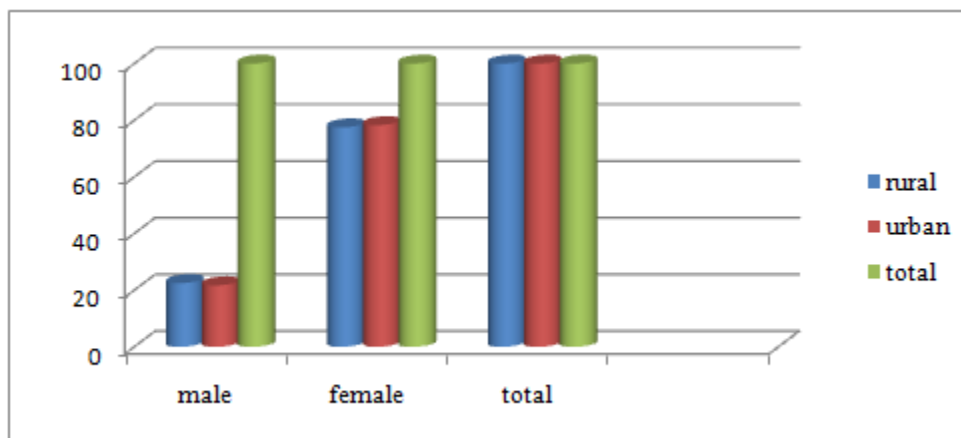


Figure 10. The perception of society in controlling and using of dairy income

4.7. Labor aspect of gender

Women's are spent more time in dairy value chain activity than of men's. According the respondent that says females are spent more time and contributes more labor than of males the activity that female participated are in cleaning dairy shade, feeding, caring dairy cows and calves, watering of dairy animals, milking, milk storing and quality control, milk churning and other that needs day to day activity and these area retune and inconsiderable activities but males are participated in un retune, seasonal and considerable works. This is also supported by the discussions of focal group and key informant this is related with the finding of (Charity K, 1990).

Dairy value chain map

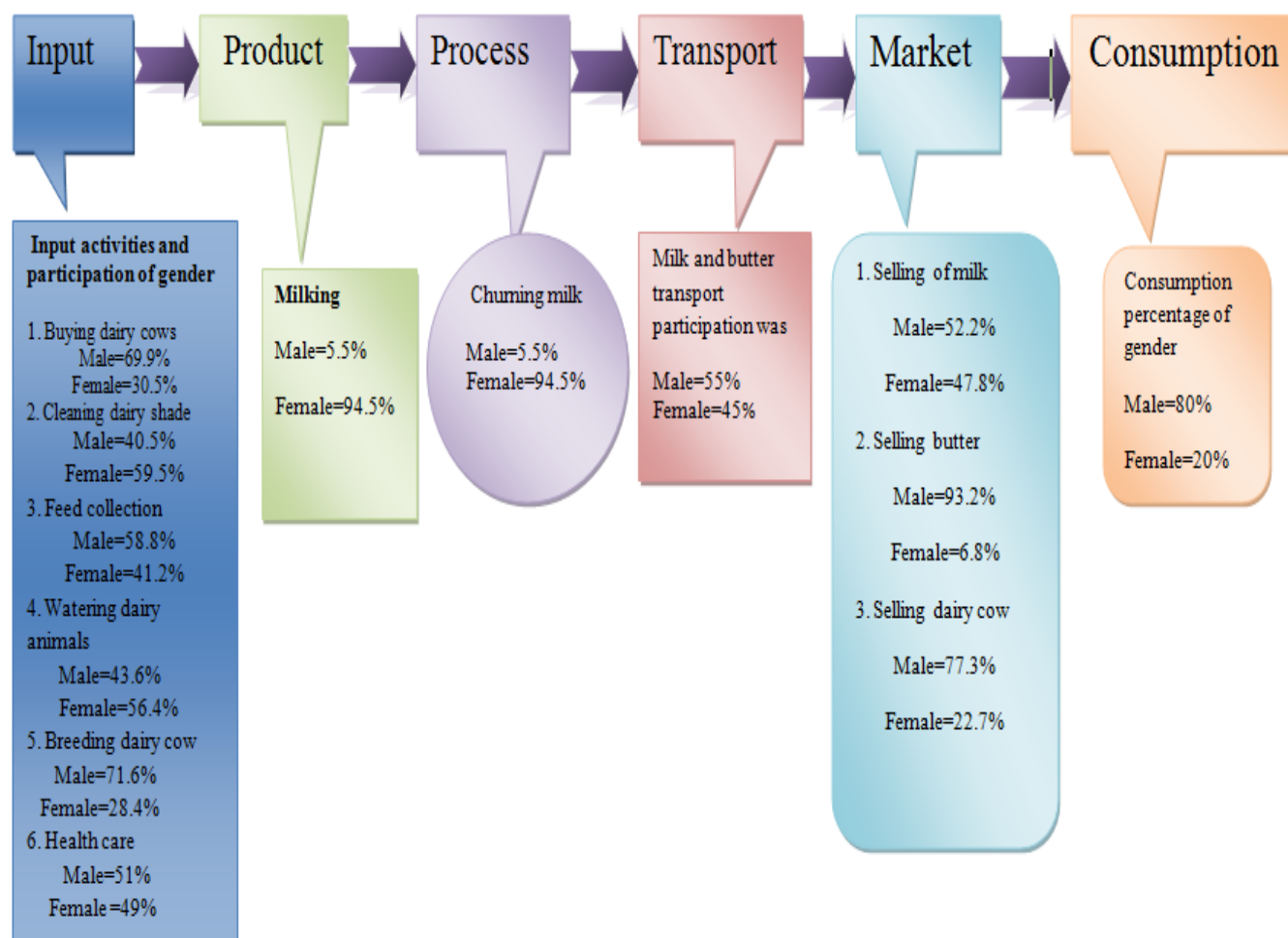


Figure 11. Dairy value chain map

CHAPTER: FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

The dairy value chain in the study area starts from input, production, processing, marketing and consumption and these respondent have local and exotic dairy cow this genetic change improve from time to time.

The gender role in dairy value chain there is a considerable improvement of gender relationship as more people are recognizing the role of women in development. There is steal gender participation difference in activities, women's are confined at lower level dairy value chain activity which is routine and daily and needs more time and in considerable activities i.e. cleaning dairy shade, watering dairy cow, caring dairy cow and calves, milking, milk container cleaning, milk quality control, milk processing, butter selling, and males are participating in higher level of value chain, i.e. selling milk, buying and selling dairy cows and food collection and animal breeding which is seasonal activities and not consumes more time and the base for this is cultural and awareness problems it leads to women's lost more time at home and they stack from societal and political participation .

The analysis on who makes decisions on how proceeds are shared and control income in the family indicates that husband and wife consult each other on how to distribute and use proceeds among the family needs; from this income women's are more beneficiary and use to small home expenses as indicates in the research 46% women beneficiary and they use and the perception of the community also supports this conclusion as indicated in the research 77.7% of the respondent and this indicates there is a progress in property owner ship.

The perception of gender on role division of dairy value chain activity is related with the result of the respondent on the actual participation of gender in dairy activity. Both gender perceives that; cleaning dairy shade, watering dairy cow, caring dairy cow and calves, milking, milk container cleaning, milk quality control,' milk processing, butter

selling as the role of females and selling milk, buying and selling dairy cows and food collection and animal breeding which is seasonal activities as role of males.

The researcher wishes to encourage all stakeholders in the dairy industry to promote gender equity and empower women as part of achieving the Millennium Development Goal number three. This will not only develop women but the entire society and thus contributing towards achieving Millennium Development Goal number one of eradicating extreme poverty should be availed to women to learn and understand their rights' within the society.

5.2. Recommendations

- To process the milk and milk product the researcher suggest that milk cooperatives and MSEs should be cooperate and empower them to participate in collecting milk, milk distributing and process the milk.
- To achieve total equity in gender roles in any value chain, the researcher suggests that more education opportunities should be availed to women to learn and understand their rights within the society how to reduce daily work load.
- Awareness creation activity in the society and these gender should be done to change the work division culture and perception difference between male and females to participate all at all types of work equally especially at low level activity women are more participated.
- In this research result dairy income shares equally between men and women but women were not participated at buying and selling of dairy cows so the society should be encouraged to shun retrogressive culture that denies women rights to own property and make decisions.
- The farmers should be encourages to embrace new technology that makes work easy and more interesting for both men and women that can be used to ease work for all including those with low levels of education
- Gender sensitization campaigns should be held to enlighten the society on gender equity.

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ANNEX

Annex 1; the dairy farm owner respondents Questionnaire

Objective of the Questionnaire

This questionnaire is prepared by a post graduate student in Aksum University for partial fulfillment of master of sciences program. The purpose of this questionnaire is to collect data about the role of gender in dairy value chain which will help to analyze gender work division, the perception of gender and society on the work division and to analyze power to decision of male and women and their profitability of the farmers of wereda Adwa and LaelayMaichew milk traders and consumers of Aksum and Adwa city; central zone of Tigray Region. I confirm you that all data will be used for academic purpose and will be analyzed anonymously and you are not exposed to any harm because of the information you gave. I need to thank for your cooperation.

I. Socio-economic status

1/personal information

1.1. Name of the
respondents.....woreda.....kebelle.....

1.2. Name of the house hold
head.....

1.3. Sex 1/ male 2/ Female

1.4. Religious 1/Orthodox 2/Muslim 3/Protestant 4/ Others

1.5. Age of the respondentyear

A/age of the respondent

1/ less than 15 year 2/from 18-30year 3/ 31-50year 5/51-65 year 5/≥66 year

B/Age of the household's members

No	Category	Male	Female	Total
1	Children less than 18			
2	Adults 19-65 years			
3	Adults≥65 years			

4	Total			
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1.5. Marital status

1/never married 2/ current married 3/Divorced 4/Widowed
5/separated

1.6. Education statusgrade

1.6.1. Educational status of the respondent

1/Illiterate 2/1-4 grade 3/5-8 grade 4/9-10 grade 5/diploma
6/ first degree 7/other

1.6.2. Educational status of the house holds

No	Category	House hold member and sex		
		Male	Female	Total
1	Illiterate			
2	grade 1-4			
3	Grade 5-8			
4	Grade 9-10			
5	Grade 11-12			
6	Diploma			
7	First Degree and above			
8	Other			

II/To address different objectives

OBJECTIVE 1. To investigate the gender division and roles in the dairy value chain

- 1.1. Is there any division of labor in the dairy farming?
1/Yes 2/No
- 1.2. Who participate in the dairy value chain activities?(if the work is done by more than one person please put all the codes)

No	Activities	1=Father 2=Mother 3=Female child 4=Male child5=Other
1	Bran cleaning	
2	Dairy cow and calf caring	
3	Food collection	
4	Feeding	

5	Watering	
6	Dairy health management	
7	Breeding	
8	Cleaning milk container	
9	Milking	
10	Milk quality control	
11	Milk storage and preparation	
12	Milk processing	
13	Milk product transportation	
14	Milk selling	
15	Butter selling	
16	Buying dairy cow	
17	Selling dairy cow	

1.3. Please write the number of livestock that you have?

No	Livestock type	Number	Current price (current value)
1	Oxen		
2	Cows		
	Local		
	Cross breed		
	Exotic		
3	Young bulls		
4	Calves		
5	Heifer		
6	Goats		
7	Sheep		
8	Camels		
9	Equines		
10	Poultry		
11	Bee		

1.4. From where do you get the dairy cow or heifer? Mention

.....

1.5. From whom do you get the dairy cow?

1. From farmer 2. Local market 3. Government 4. NGO 5.Others

1.6. At what price do you buy the dairy cow?

1. Local cow (in birr).....

2. Cross breed

3. Exotic.....

1.7. When the cow starts first lactation (at how much year)year

1. Year 1-2 2. 2-3 year 3. 4 year 4. ≥ 5 year

1.8. How many of each of the following cattle do you have?

No	Cattle group	Herd number of Animal	Type of Animal 1=local	2= cross breed	3=Exotic
1	Milking				
2	In calf heifer				
3	Young heifer				
4	Dairy cows				
5	Calves				
	Males				
	Female				
	Steer(oxen)				
	Bulls				

1.8.1. For what purpose do you use these animals?

1. for milk purpose 2. For meat purpose 3 for social status 4. For traction
5.others

1.9. What type of dairy food do you use? Circle all that apply

1/ Natural grazing 2/crop residues 3/frusta 4/different modern tree/grasses /
5/other

1.10. What is the source of dairy food?

1/purchase 2/own production 3/ both 4/ other sources

1.11. Who is responsible to collect dairy food? Circle all that apply;

1/ Father 2/ Mother 3/daughter 4/son 5/others

1.12. Who spent more time in feed collection activities? Circle all that apply;

1/Father 2/Mother 3/both

1.13. Who spent more time in feed collection activities? Circle all that apply;

1/ daughter 2/son 3/both

1.14. Who spent more time in cleaning the dairy bran/shade/?

1/Father 2/Mother 3/both

1.15. Who spent more time in cleaning the dairy bran/shade/?

1/daughter 2/son 3/both

1.16. Who spent more time in cleaning, feeding, watering, calf and cow caring, milking?

1/Father 2/Mother 3/both

1.17. Who spent more time in cleaning, feeding, watering, calf and cow caring, milking?

1/daughter 2/son 3/both

1.18. Who participates more at buying and selling dairy cow, selling milk and butter?

1/Father 2/Mather 3/both

1.19. Who participate more at buying and selling dairy cow, selling milk and butter?

1/daughter 2/son 3/both

1.20. From whom do you get the animal health service?

1/government 2/privet sector 3/both 4/ other

OBJECTIVE2; to identify the role played by both males and females in deciding and sharing the benefits accrued in a dairy value chain

2.1. Who decides to buy and sale the dairy cows?

1/Father 2/Mother 3/ they decides equally

2.2. Who decides to buy and sale the dairy cows?

1/ daughter 2/son 3/ they decides equally

2.3. Who decides how much to sale milk and milk products?

1/Father 2/Mother 3/ they decides equally

2.4. Who decides how much to sale milk and milk products?

1/daughter 2/son 3/ they decides equally

2.5. Who decides on how to use the income that gets from dairy products?

1/Father 2/Mother 3/ they decides equally

2.6. Who decides on how to use the income that gets from dairy products?

1/ daughter 2/son 3/ they decides equally

2.7. Who is more benefited from the income of dairy products?

1/Father 2/Mother 3/daughter 4/son 5/others

2.8. For what purpose do you use the income that get from dairy products?

1/to buy additional dairy cow 2/buying food items 3/saving 4/buying cloths

5/school fee 6.house construction 7/ buying house furniture 8/ medical fee
9/others

2.9. Who control the income that get from dairy products?

1/Father 2/Mother 3/daughter 4/son 5/others

2.10. What is the perception of gender on deciding and sharing the benefits obtained from dairy production...

OB JECTIVE 3; To identify the perception of men and women on the division of role on the dairy value chain.

3.1. What is the perception of both genders on the responsible for?

No	Activities	1=Father 2=Mather 3=Female child 4=male child 5=other
1	Bran cleaning	
2	Dairy cow and calf caring	
3	Food collection	
4	Feeding	
5	Watering	
6	Dairy health management	
7	Breeding	
8	Cleaning milk container	
9	Milking	
10	Milk quality control	
11	Milk storage and preparation	
12	Milk processing	
13	Milk product transportation	
14	Milk selling	
15	Butter selling	
16	Buying dairy cow	

17	Selling dairy cow	
----	-------------------	--

3.2. What is the base for such a perception? Circle all that apply

1/Culture 2/religious 3/awareness problem 4/beliefs 5/others

Describe it.....

OBJECTIV 4.To identify the perception of the community who is benefit able (males and females) from the dairy value chain and then identify what the actual results tell us in this regard.

4.1. What is the perception of the community on who is more beneficial form dairy farming?

1/Father 2/Mather 3/daughter 4/son 5/others

4.2. Is your production profitable?

1. Yes 2.No

4.2.1. If your answer for N 4.2 is 'yes' how much is it? State in birr.....?

a/ daily.....b/ weekly.....c/monthly..... d/yearly.....

4.2.1.1. How much litter of milk produces?

a/daily.....b/weekly..... c/ monthly.....

4.2.1.2. For what purpose do you use the milk? Circle all that apply

1. For sale 2.house hold consumption 3.neighbours gift 4. Other purpose

4.2.1.3. If your answer for N 4.2.1.2. is for sale; how much liter of milk you sale?

a/ Daily? b/ weekly?..... c/ monthly?..... ,

4.2.1.4. On an average at what price per liter of milk you sale?

4.2.1.5. What is the total income from milk sale?

a/maximum.....birr b/mediumc/minimum.....

a/ daily.....? b / Weekly.....? c/ Monthly.....?

4.2.1.6. Who purchase your milk? Circle all that apply

1/Direct to consumer 2/ café 3/hotels 4/milk wholesaler 5/ other

4.2.1.7. What type of milk container do you use?

1/at clay pot 2/plastic container 3/aluminum container 4/others

4.2.1.8. What mode of transportation do you use to transport milk to market?

1/by person 2/by car 3/by animals 4/others

4.2.2. Do you process the milk to milk product? 1/yes 2/no

4.2.2.1. If your answer for N 4.2.2.is `yes` what are these?

1/butter 2/cottage 3/ghee 4/ sour milk 5/other

4.2.2.2. Do you sale these products? 1/yes 2/ no

4.2.2.3. If your answer for N 4.2.2.2.at what price you sale birr?

No	Type of product	Measurement	Unit price	Income			
				Daily	weekly	monthly	Yearly
1	Butter						
2	Cottage						
3	Ghee						
4	Sour milk						
5	Other						

4.2.2.4. If your answer for N 1.8.2. is `no` what is the causes?.....

4.3. What is your costs related to dairy value chain?

No	Type activities	Measure ment	Unit cost	Total cost	Daily Cost	Weekly cost	Monthly	yearly
1	Input side							
1.1	cost of buying dairy cost							
1.2	Cost of dairy cow food							
1.3	Cost of medical service							
1.4	Cost labor/wage/							
2	Production cost							
2.1	Cost of milk container							
3	Marketing							
3.1	Cost of dairy product Transportation							
3.2	Other cost							

Annex 2; the hotels and cafe owner respondents Questionnaire

I. Socio-economic status

1/personal information

1.1. Name of the respondents.....woreda.....kebele.....

1.2. Name of the house hold head.....

1.3. Sex 1/ male 2/ Female

1.4. Religious 1/Orthodox 2/Muslim 3/Protestant 4/ Others

1.5. Age of the respondentyear

A/age of the respondent

1/ less than 15 year 2/from 18-30year 3/ 31-50year 5/51-65 year 5/≥66 year

B/Age of the household's members

No	Category	Male	Female	Total
1	Children less than 18			
2	Adults 19-65 years			
3	Adults≥65 years			
4	Total			

1.6. Marital status

1/never married 2/ current married 3/Divorced 4/Widowed
5/separated

1.7. Education statusgrade

1.7.1. Educational status of the respondent

1/Illiterate 2/1-4 grade 3/5-8 grade 4/9-10 grade 5/diploma

6/ first degree 7/other

1.7.2. Educational status of the household's member

No	Category	House hold member and sex		
		Male	Female	Total
1	Illiterate			
2	grade 1-4			
3	Grade 5-8			
4	Grade 9-10			
5	Grade 11-12			
6	Diploma			
7	First Degree and above			
8	Other			

2/Questions

1/Do you sale milk in your business house

1/Yes

2/ No

2/If your answer for no 1 is yes, from whom do you get the milk?

1/ from rural farmer

2/ from urban producers

3/ from cooperatives

4/ from open market

5/ others

3/who sales to you the milk (which gender)?

1/The mother

2/the father

3/ the daughter

4/the boys

4/do you get good quality of milk? 1/yes

2/ no

5/If your answer for N4 is no, what are the causes?.....

.....

6/How much liter of milk do you buy daily?

.....

7/ how much liter of milk do you sale daily?

.....

8/ How much birr do you buy per a liter of milk?

1/< 10 birr 2/11-15birr 3/ 16- 20 Birr 4/ >21 birr

9/at what price do you sale for a liter of milk?

1/< 10 birr 2/11-15birr 3/ 16- 20 Birr 4/ 21-25 birr 5/ >25 birr

10/ who are your milk consumers?

1/student 2/Civil servant 3/urban dowers 4/ others

11/from both gender who consumes more?

1/ Father 2/ mother 3/ daughter 4/son

12/Do you change to other milk products?

1/yes 2/ no

13/If your answer for N 12 is yes, what are these?

1/Cheese 2/Butter 3/ Ghee 4/ other

14/do you get market for these milk products?

1/ yes 2/ no

15/ If your answer for N 14 is no, what the case? Explain

.....

**Annex 3; the key Informant Guide(for DA and gender experts respondents
Questionnaire**

1. personal information

1.1. Name of the respondent.....woredakebelle

1.2. Education level.....grade

1/Illiterate 2/1-4 grade 3/5-8 grade 4/9-10 grade 5/diploma

6/ first degree and above 7/other

1.3. Age of respondent.....year

1/20 -30year 2/31-40 year 3/41-50 year 4/Above 50 year

1.4. sex

1/Male

2/Female

2. What is your responsibility in this kebele?

.....

....

3. How long have you been working in this kebele...year

4. Do you support the dairy farmers of your kebele? 1/ yes 2/no

If you say yes what are these activity you support?

Explain.....

5. In your opinion, is there division of labor in dairy farming activity within the house hold and the community? 1/yes 2/no

5.1. If you say yes who do what? Why?

No	Activities	1=Father 2=Mather 3=Female child 4=male child 5=other /put all the number that apply/
1	Bran cleaning	
2	Dairy cow and calf caring	
3	Food collection	
4	Feeding	
5	Watering	
6	Dairy health management	
7	Breeding	
8	Cleaning milk container	
9	Milking	
10	Milk quality control	
11	Milk storage and preparation	
12	Milk processing	
13	Milk product transportation	
14	Milk selling	
15	Butter selling	
16	Buying dairy cow	
17	Selling dairy cow	

Why? Explain

.....

5.2. Is there any awareness creation activity to change this division of labor in the house holed and community? 1/ yes 2/no

Explain.....

5.3. In your opinion, do you think the role of gender is change from time to time in the house holed and community?

1/yes 2/no

Explain.....

6. In your opinion, do you think there are uneven power relations between men and their wives in this community or gender related discrimination/exclusions?

1/yes 2/no

6.1. If your answer is yes, what is the cause?

.....

7. In your opinion, who decides sharing of the income that gets from dairy products?

1/father 2/ Mather 3/both equally decides

Why.....

8. In your opinion, who decides sharing of the income that get from dairy products?

1/ daughter 2/son 3/ both equally decides

Why.....

9. In your opinion, who benefits more from the income that get from dairy products?

1/father 2/ Mather 3/both equally decides

Why.....

10. In your opinion, who benefits more from the income that get from dairy products?

1/ daughter 2/son 3/ both equally decides

Why..... 1

1. From the two genders, who participate in discussions and different meetings, related their work? 1/father 2/ Mather 3/ daughter 4/son

12. Who calls/consults you whenever a household needs veterinary services/advice?

1/father 2/ Mather 3/ daughter 4/ son

Why.....

Annex 4. Focus Group Discussion guide

1. What kind of activities does women and men and boys and girls do in a dairy value chain and why...
2. How often or how much time is devoted to these activities?.....
3. What choices/alternatives do they have regarding the activities performed along the chain?
4. What are the norms and values regarding gender roles?.....
5. Who determines the gender roles?
6. What influences gender division of labor?
7. How would you describe gender relationship within this community
8. What is the visibility/value granted to women/men's roles in a dairy value chain?
.....

9. Are gender roles changing from time to time? If yes, how and in what ways?

.....

10. Are there any restrictions to women owning property? 1/yes 2/ no

If you say yes how does it affect their role in decision making?

.....